Rehabilitation and Restoration of the Longfellow Bridge

MEPA Hearing

April 30, 2009

Purpose and Need of the Project

- Replacement?
- Rehabilitation?
- Do Nothing?

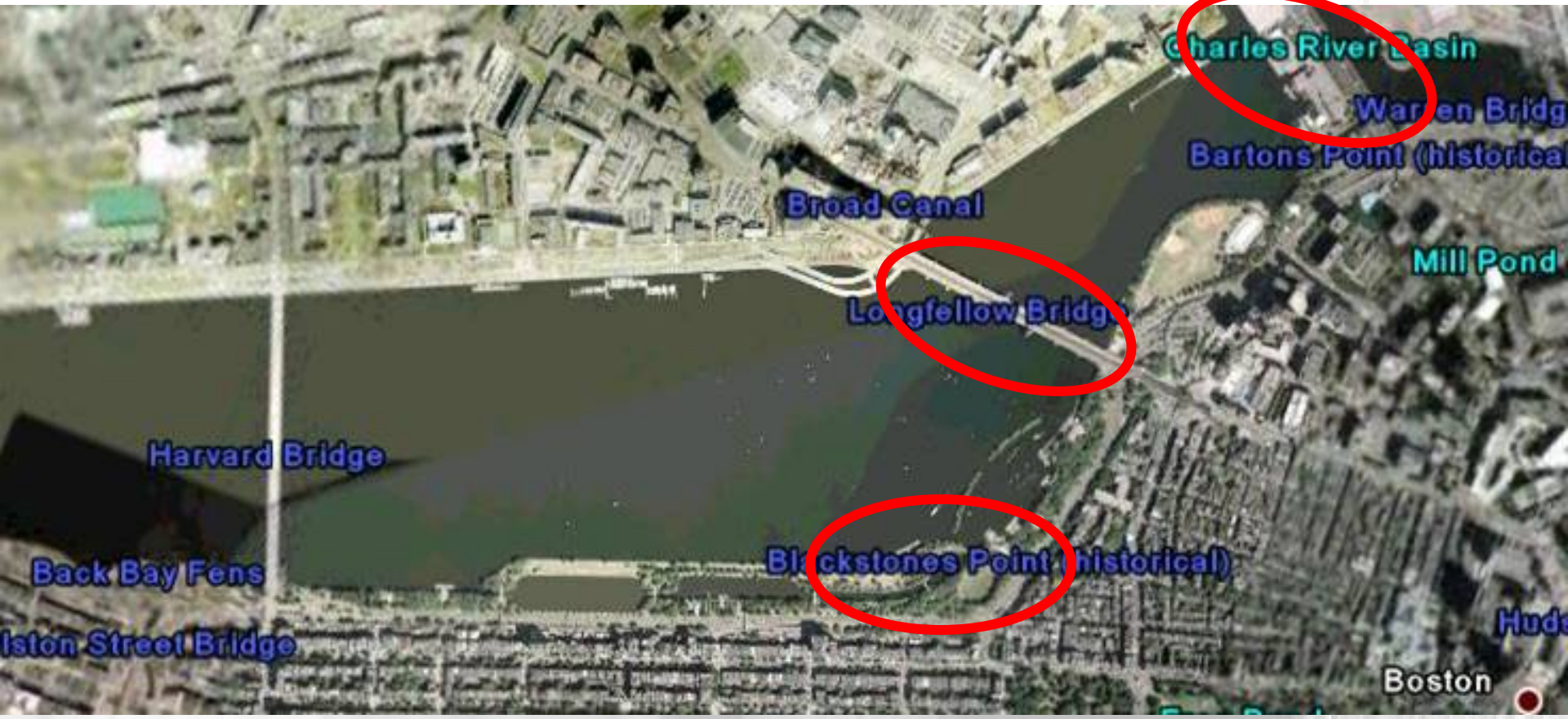
Ongoing Temporary Repairs

Overall Project Schedule

- Preliminary Design — May 2009
- Environmental Permitting — July 2010
- Design Public Hearing — July 2009
- Final Design — July 2010

- Early Construction Contract — 2009 to 2010
- Construction — 2010 through 2014

Charles River Basin Project Coordination

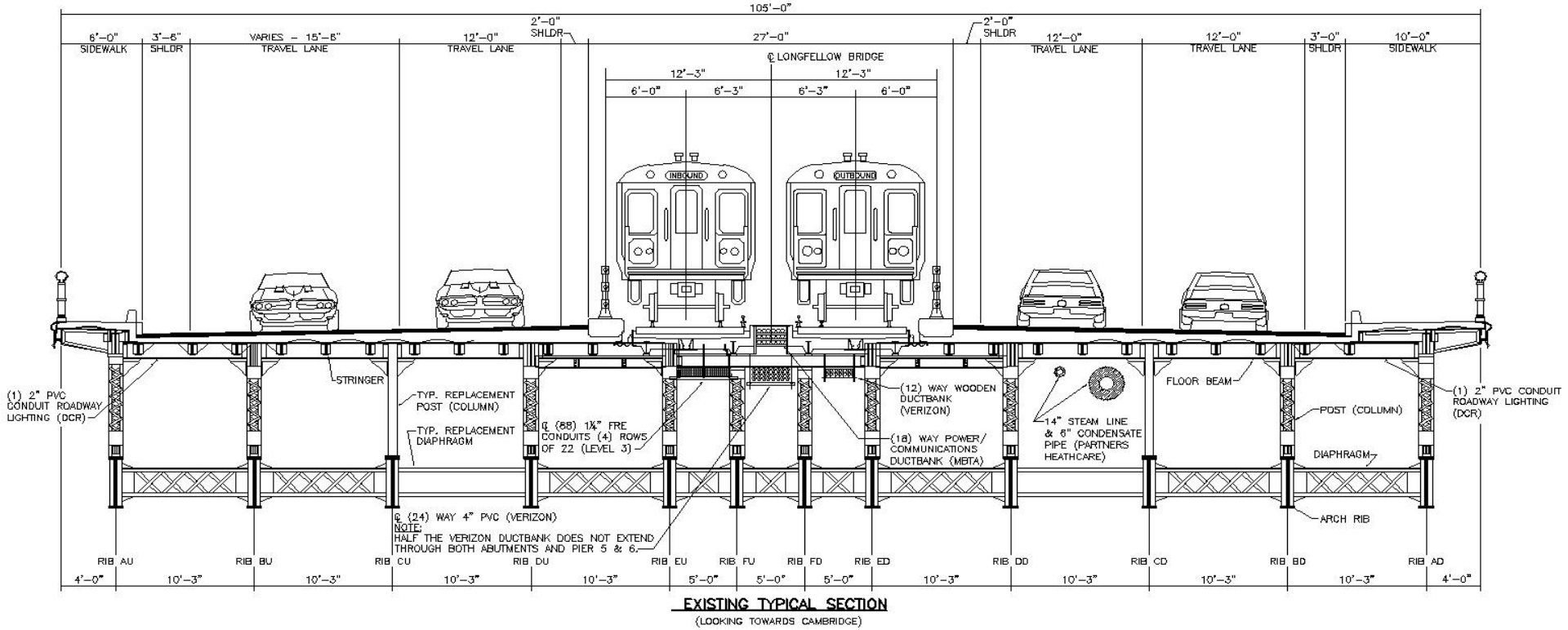


Brief History of the Bridge

- Construction 1907
- Rapid Transit 1912
- Charles MGH Station 1932
- Charles River Esplanade 1934
- Storrow Drive 1949
- Memorial Drive 1956
- Bridge Rehabilitation 1959

- National Register of Historic Places
- Charles River Basin Historic District
- Section 106 Review Process

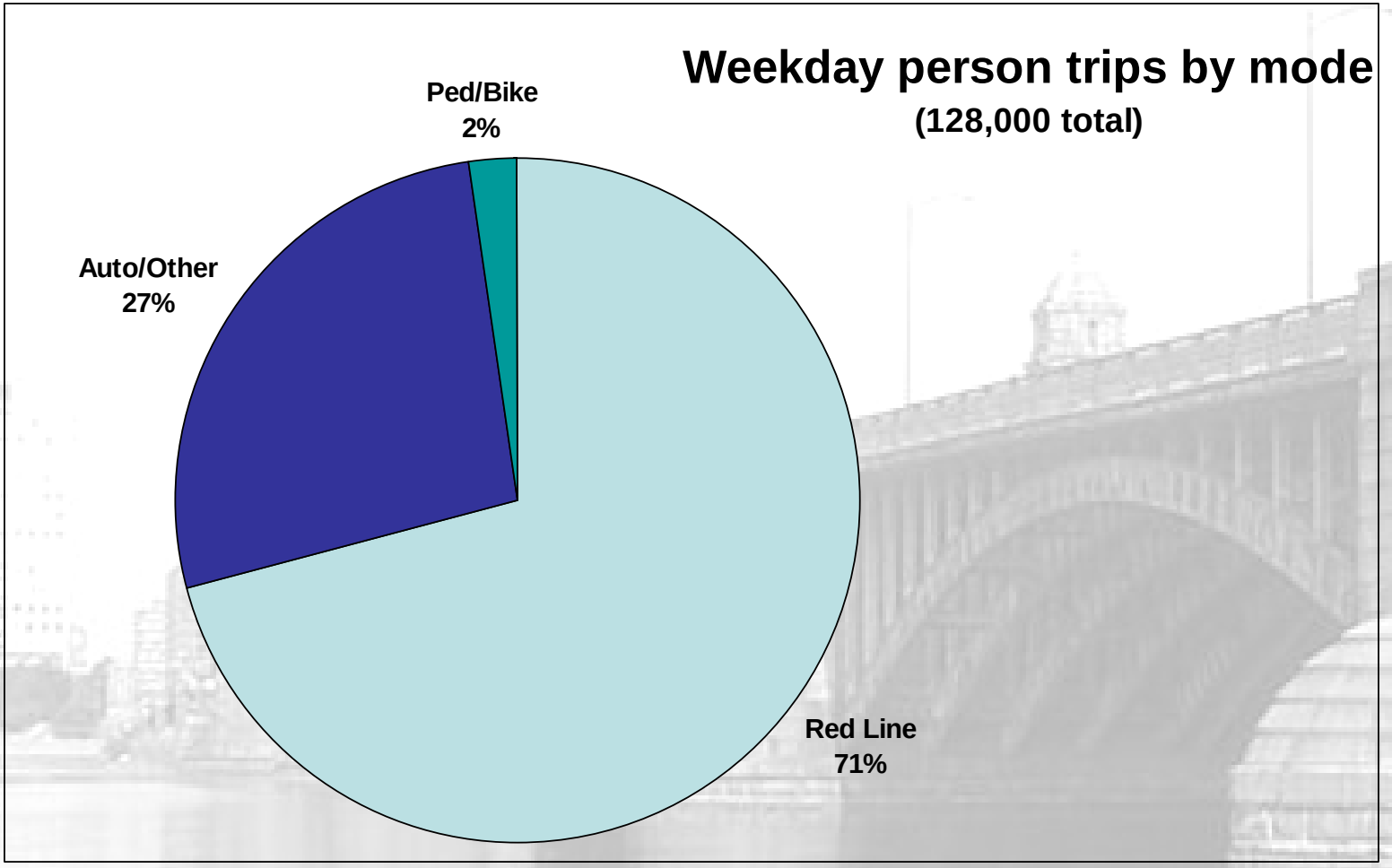
Existing Typical Section



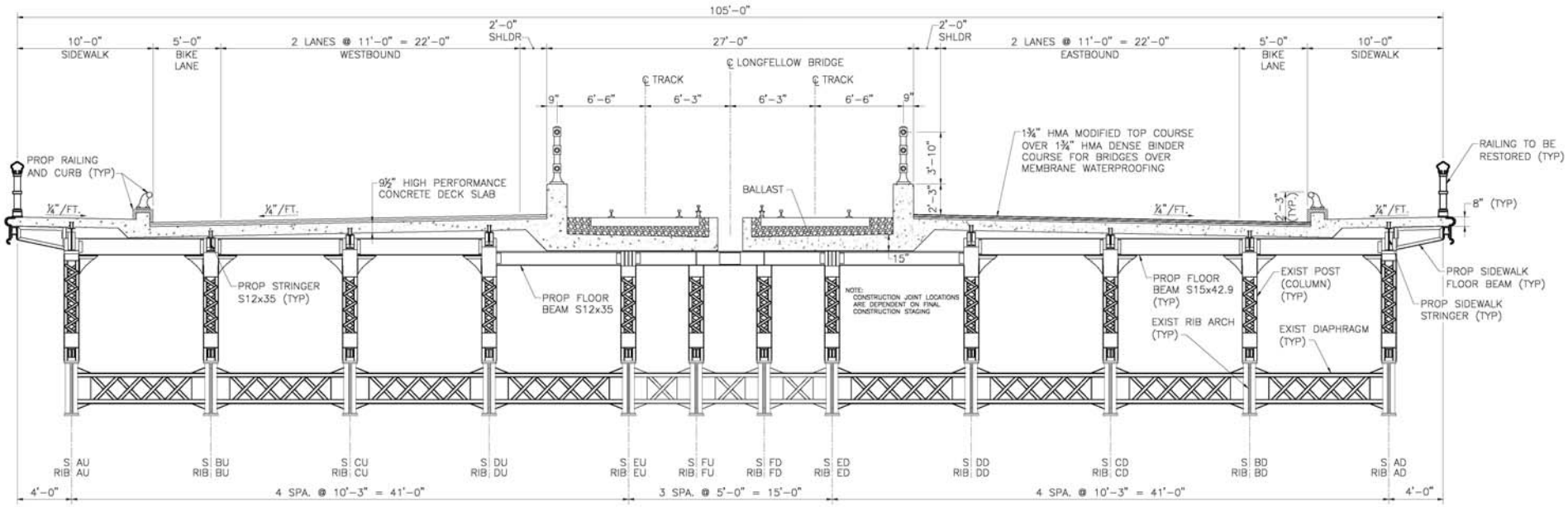
EXISTING TYPICAL SECTION
(LOOKING TOWARDS CAMBRIDGE)

Fig. 2.1-2

Longfellow Traffic

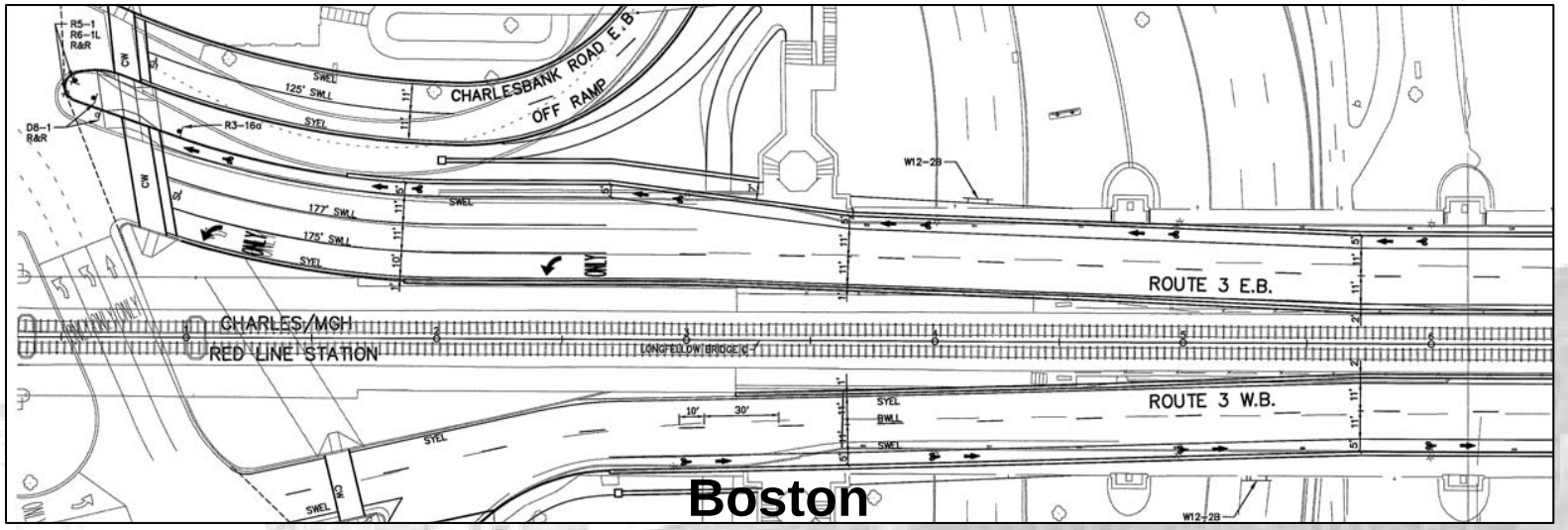


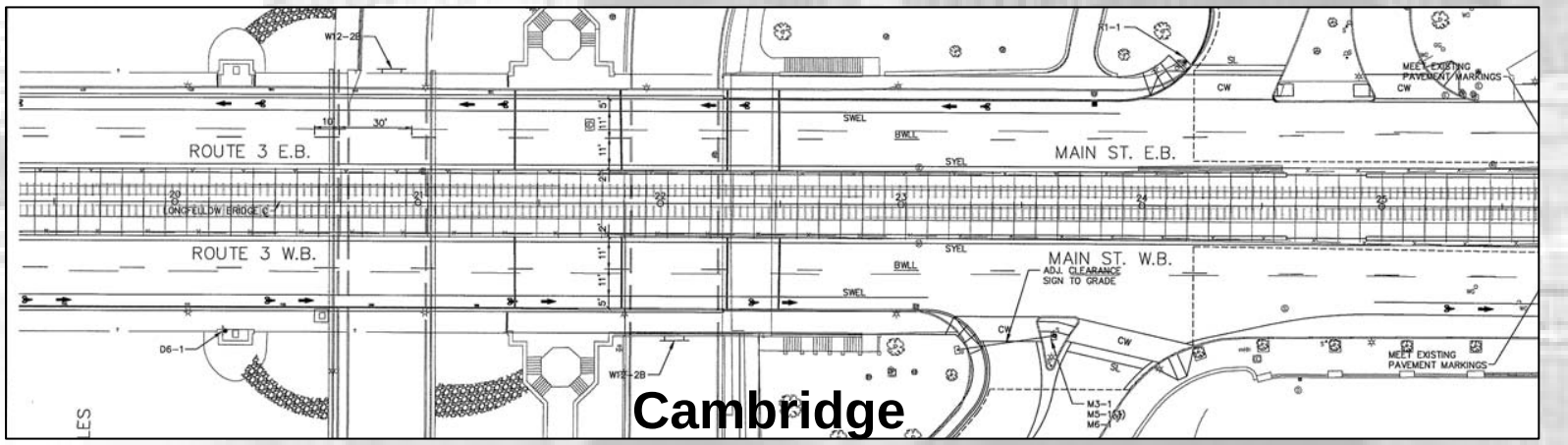
Proposed Typical Section
(Spans 3 through 10)



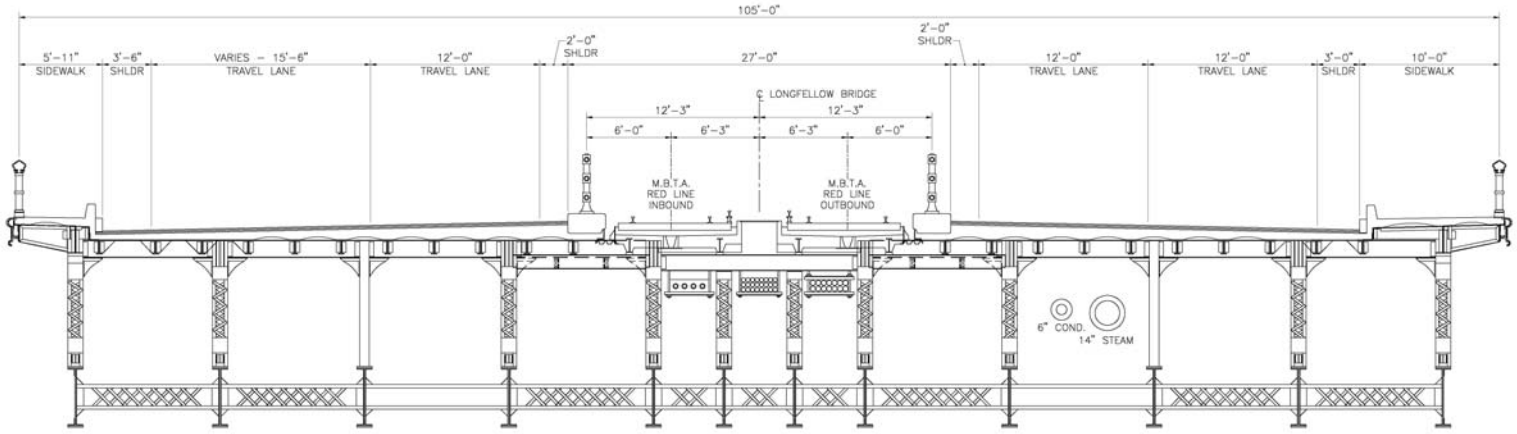
PROPOSED TRANSVERSE SECTION – SPANS 3 THRU 10 NEAR PIERS
SCALE: ¼" = 1'-0"

Proposed Roadway Plan View



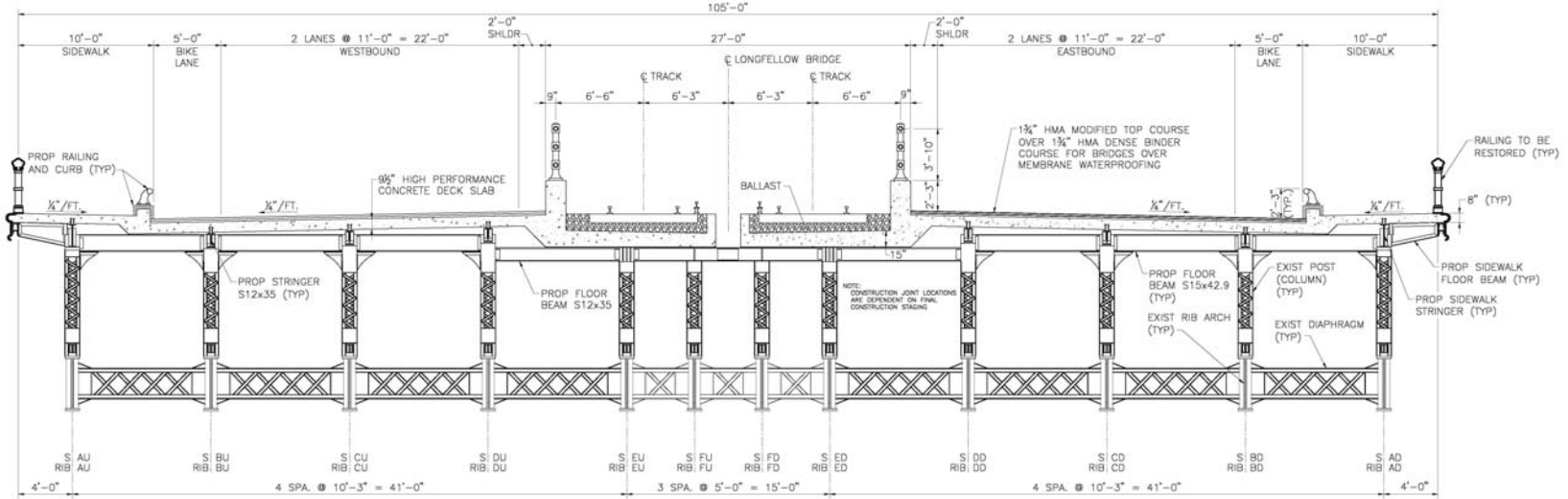


Comparison of Cross Section



EXISTING TRANSVERSE SECTION – SPANS 3 THRU 10 NEAR PIERS

SCALE: 1/8" = 1'-0"

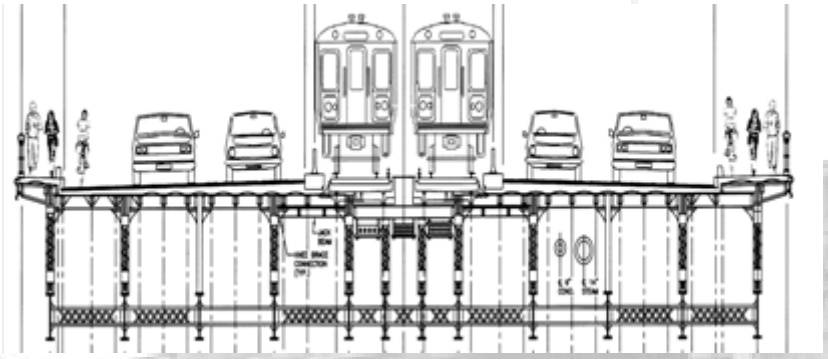


PROPOSED TRANSVERSE SECTION – SPANS 3 THRU 10 NEAR PIERS

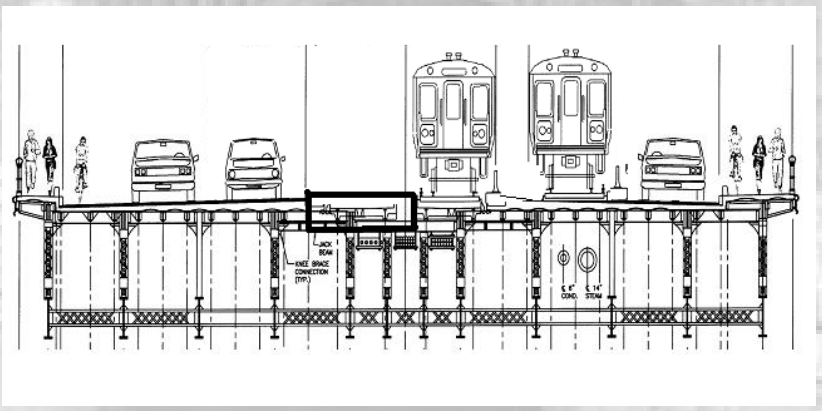
SCALE: 1/8" = 1'-0"

Maintenance of Red Line Operations

Alternative 1 - T Roadway Detour (Shoofly)

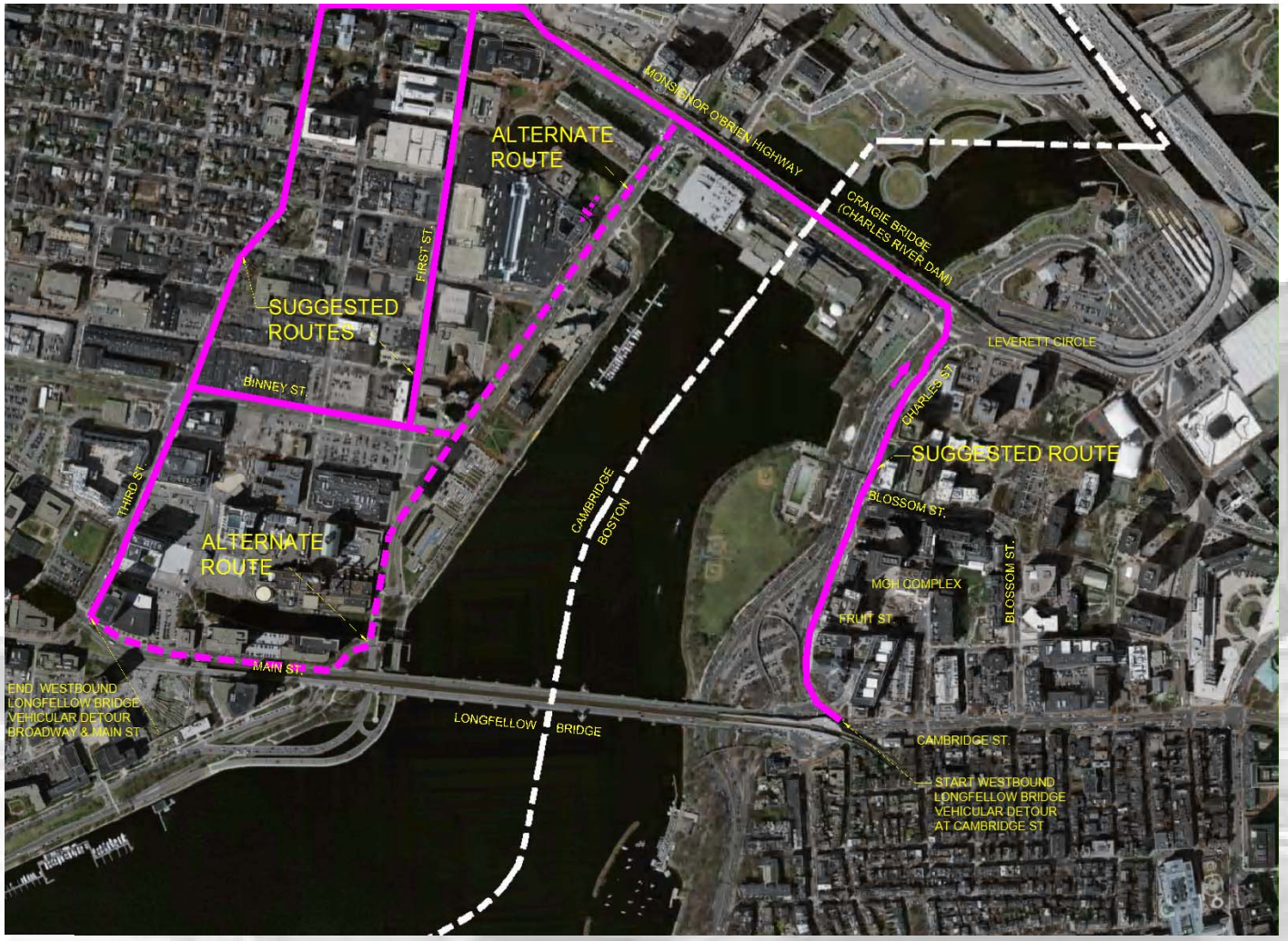


Normal Conditions

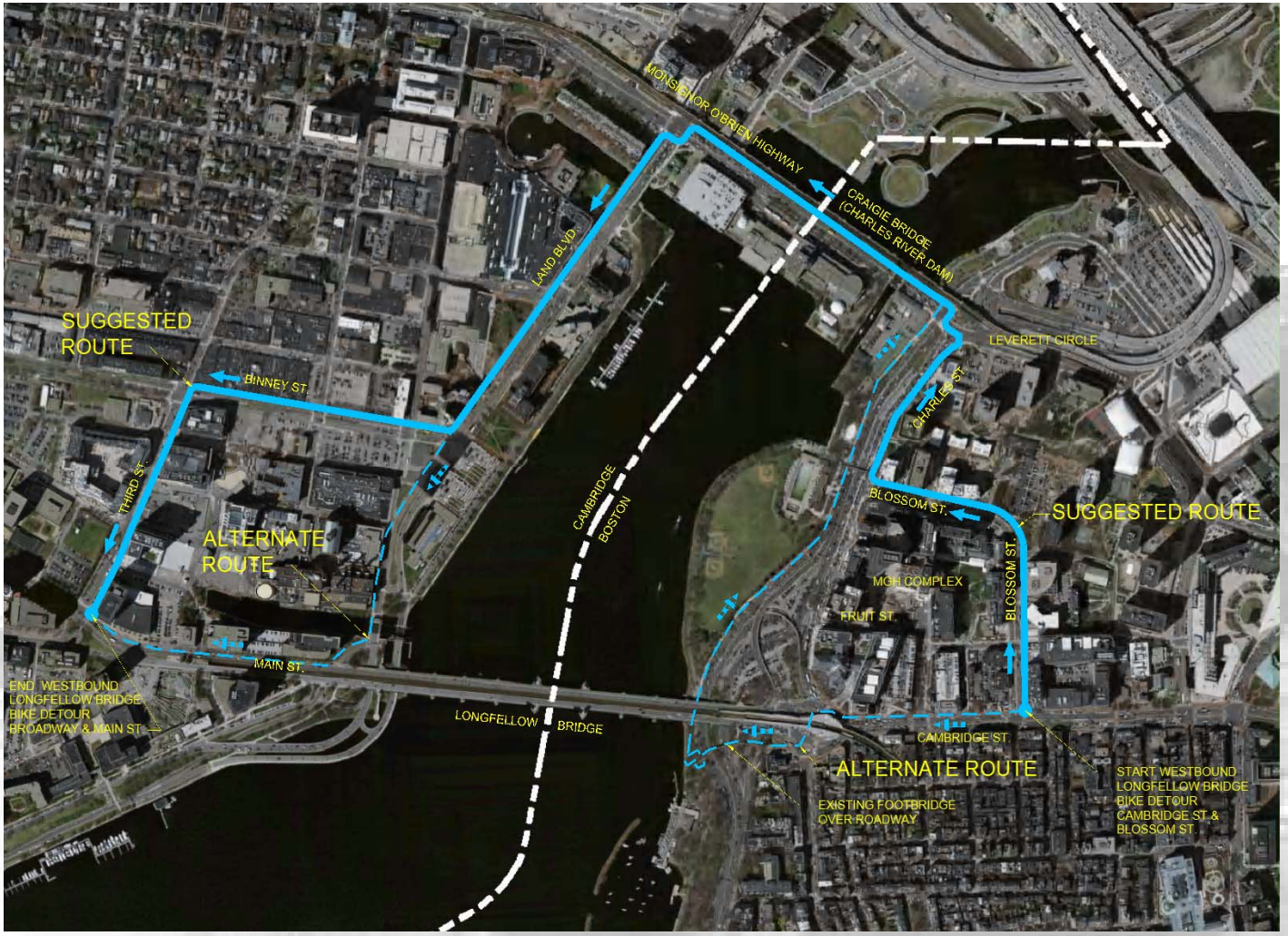


With Roadway Detour

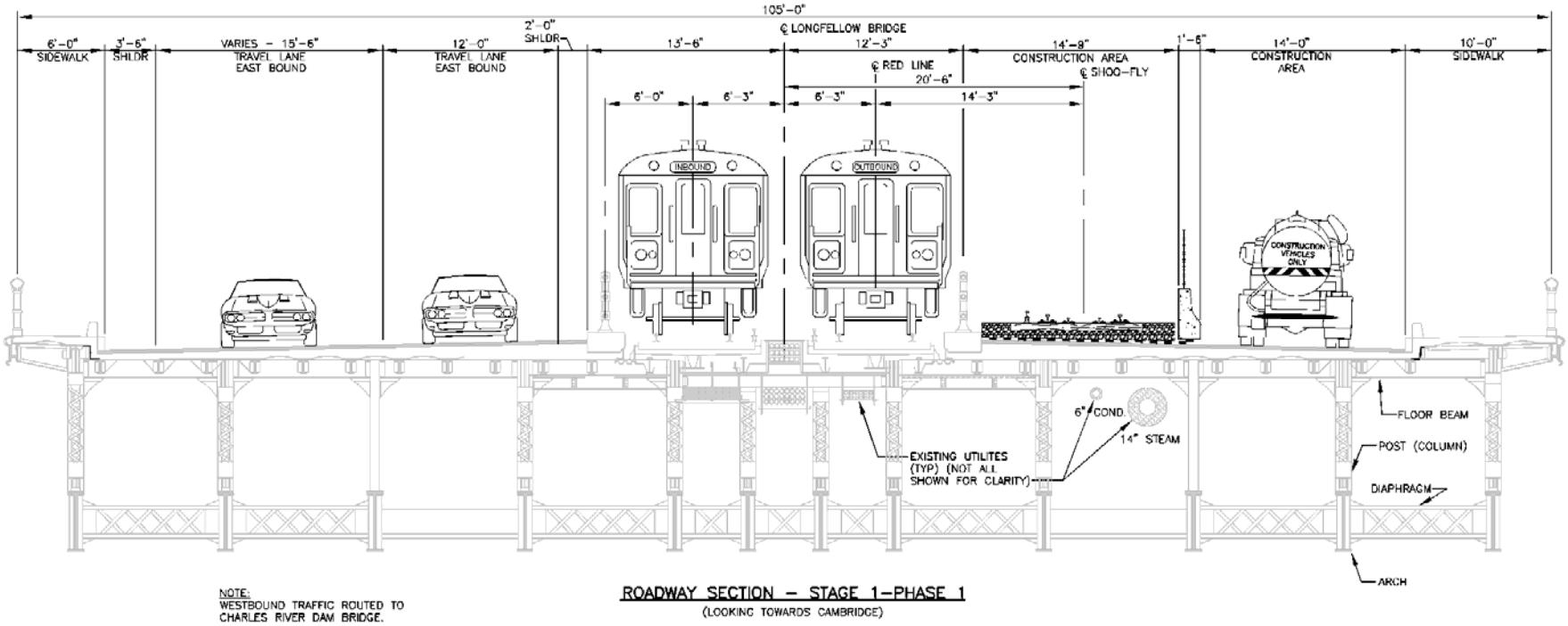
Westbound Vehicular Detour



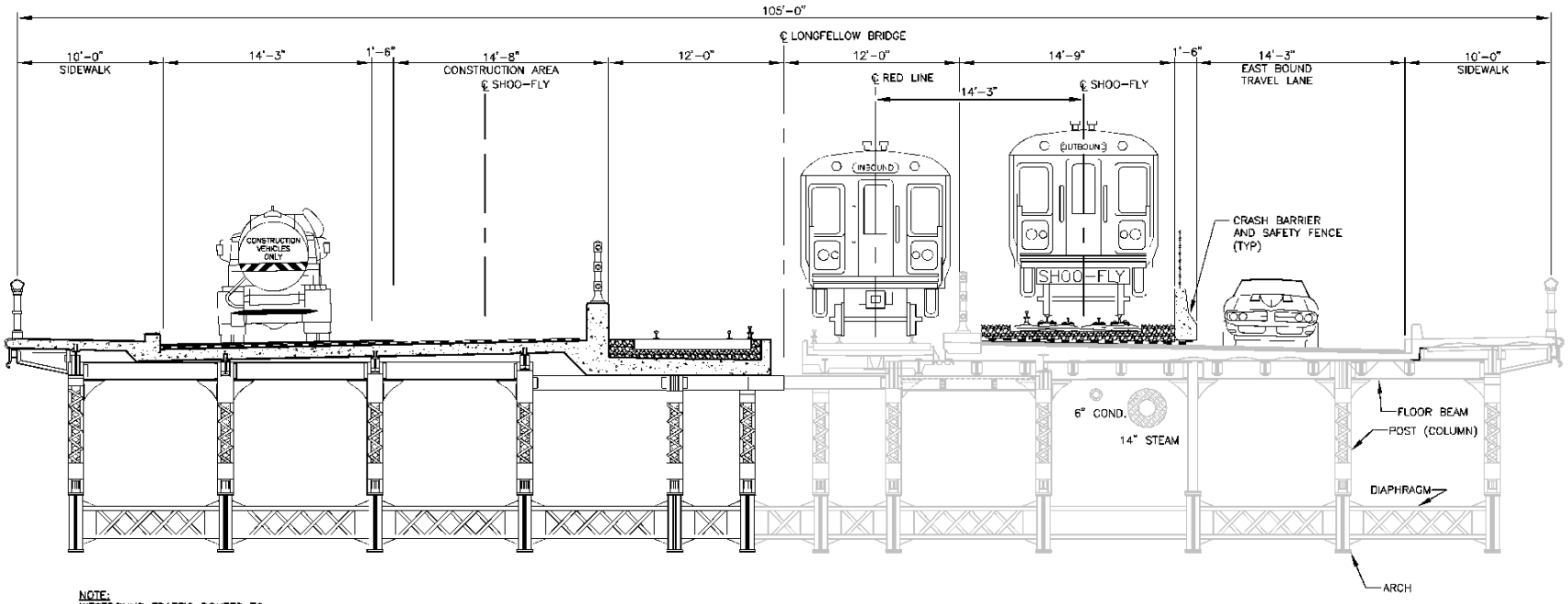
Westbound Bicycle Detour



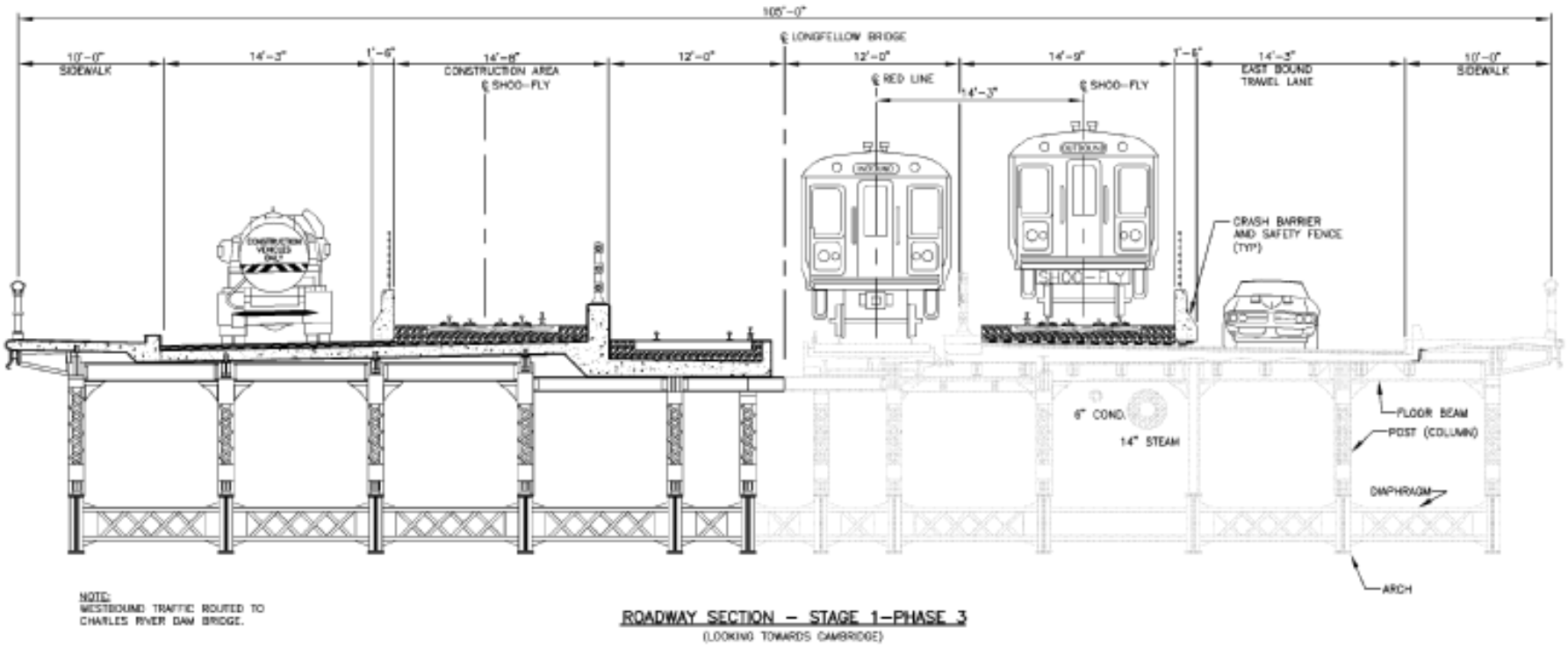
Option 1 – Stage 1
Phase 1



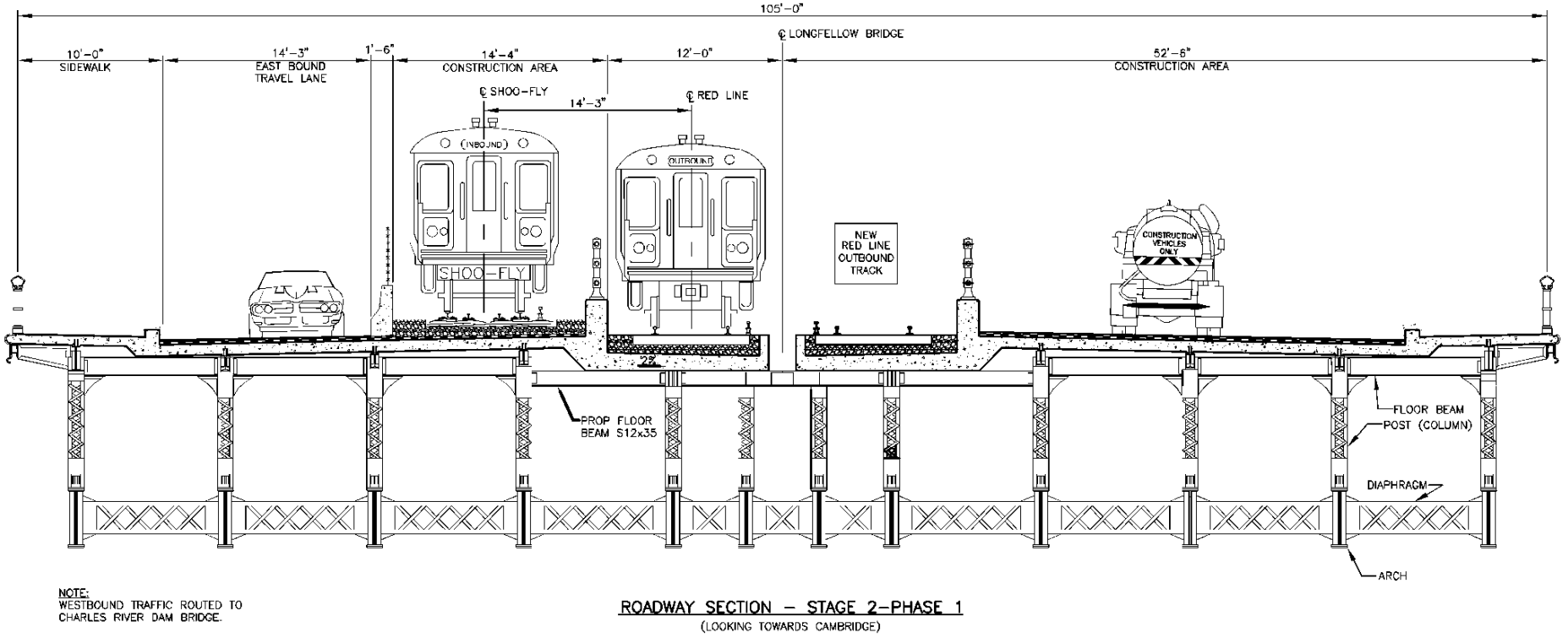
Option 1 – Stage 1
Phase 2



Option 1 – Stage 1
Phase 3



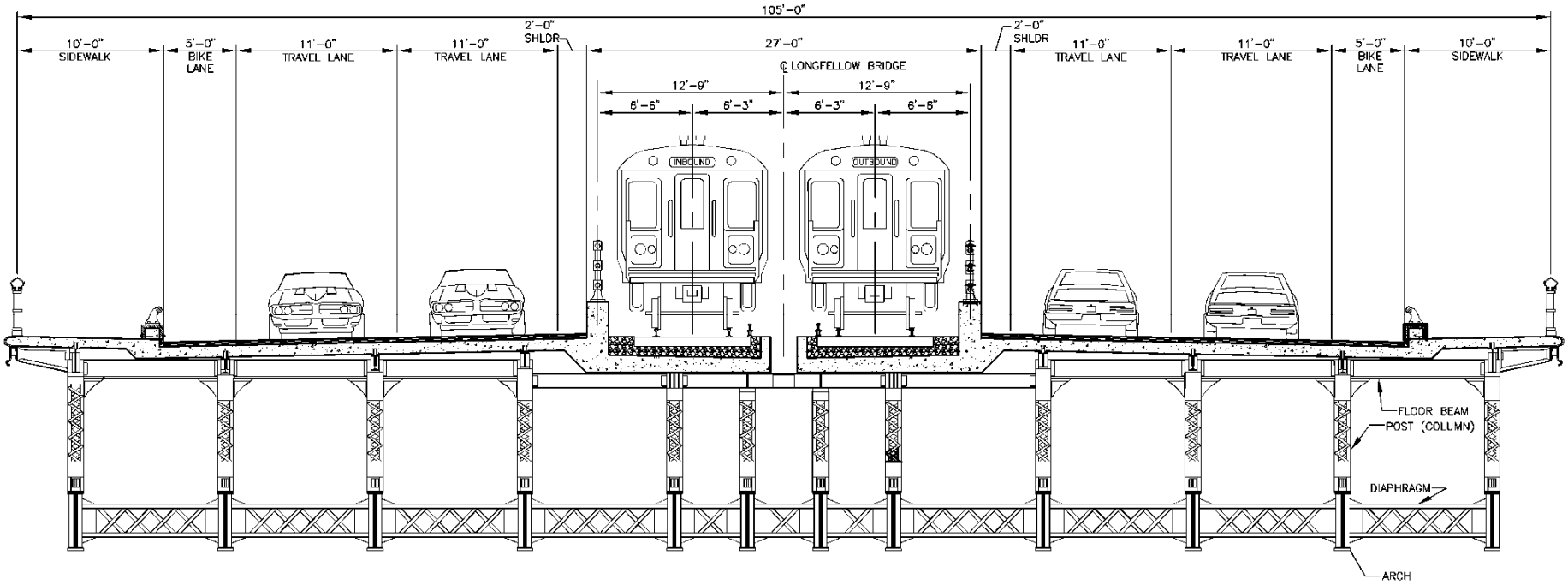
Option 1 – Stage 2
Phase 1



NOTE:
WESTBOUND TRAFFIC ROUTED TO CHARLES RIVER DAM BRIDGE.

ROADWAY SECTION – STAGE 2–PHASE 1
(LOOKING TOWARDS CAMBRIDGE)

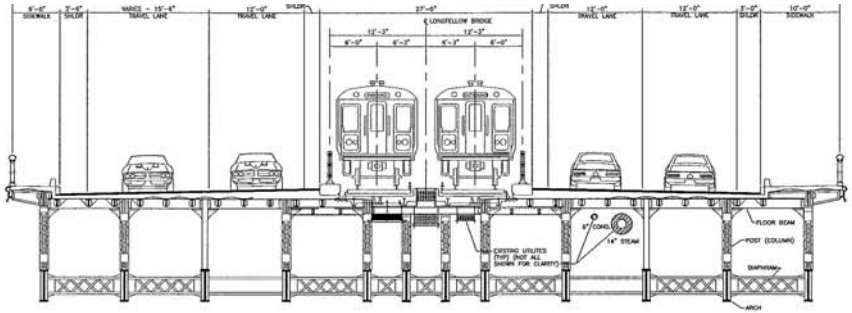
Option 1 – Complete

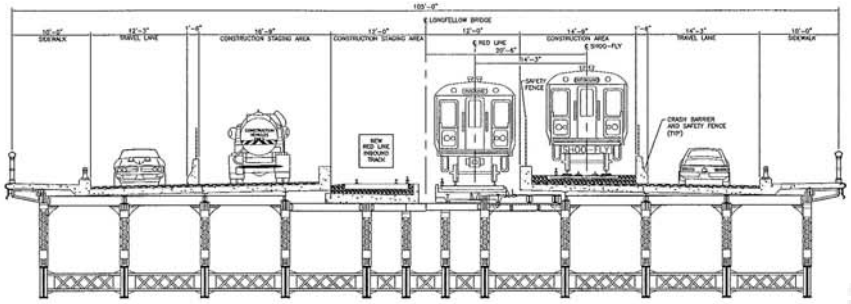


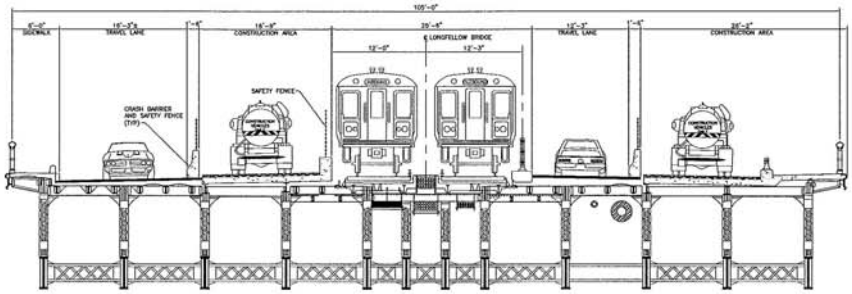
NOTE:
WESTBOUND TRAFFIC ROUTED TO CHARLES RIVER DAM BRIDGE.

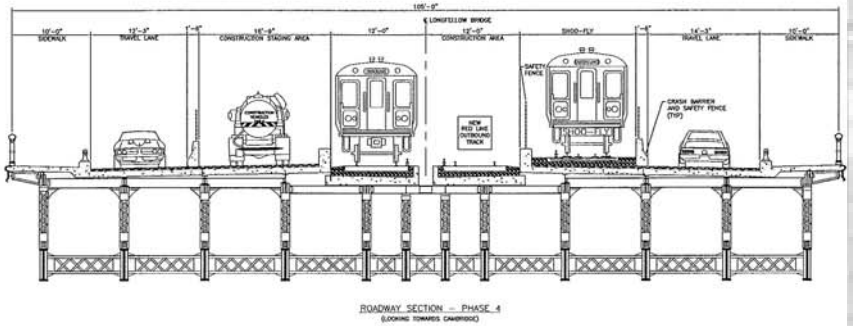
PROPOSED TYPICAL SECTION
(LOOKING TOWARDS CAMBRIDGE)

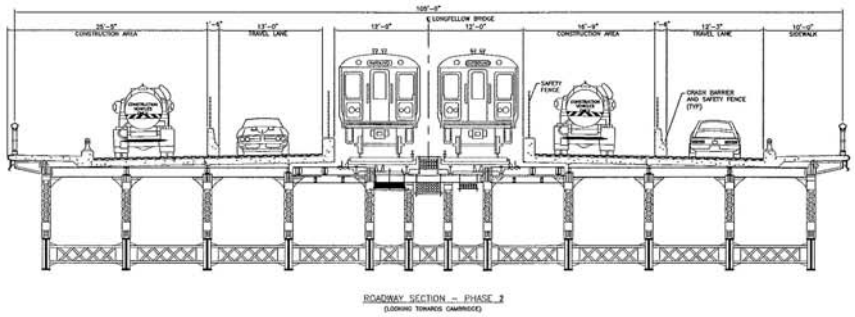
Construction Staging – Option 2

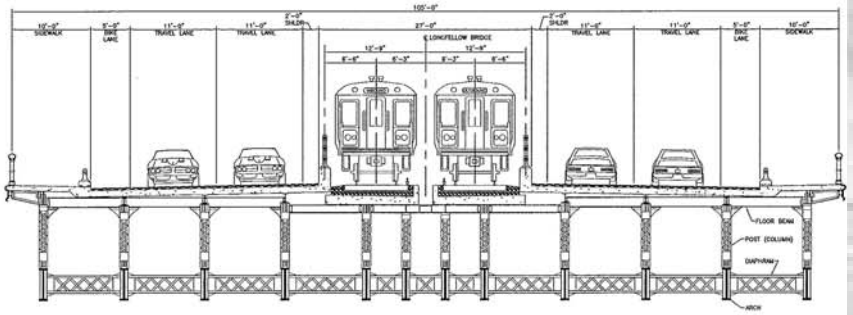




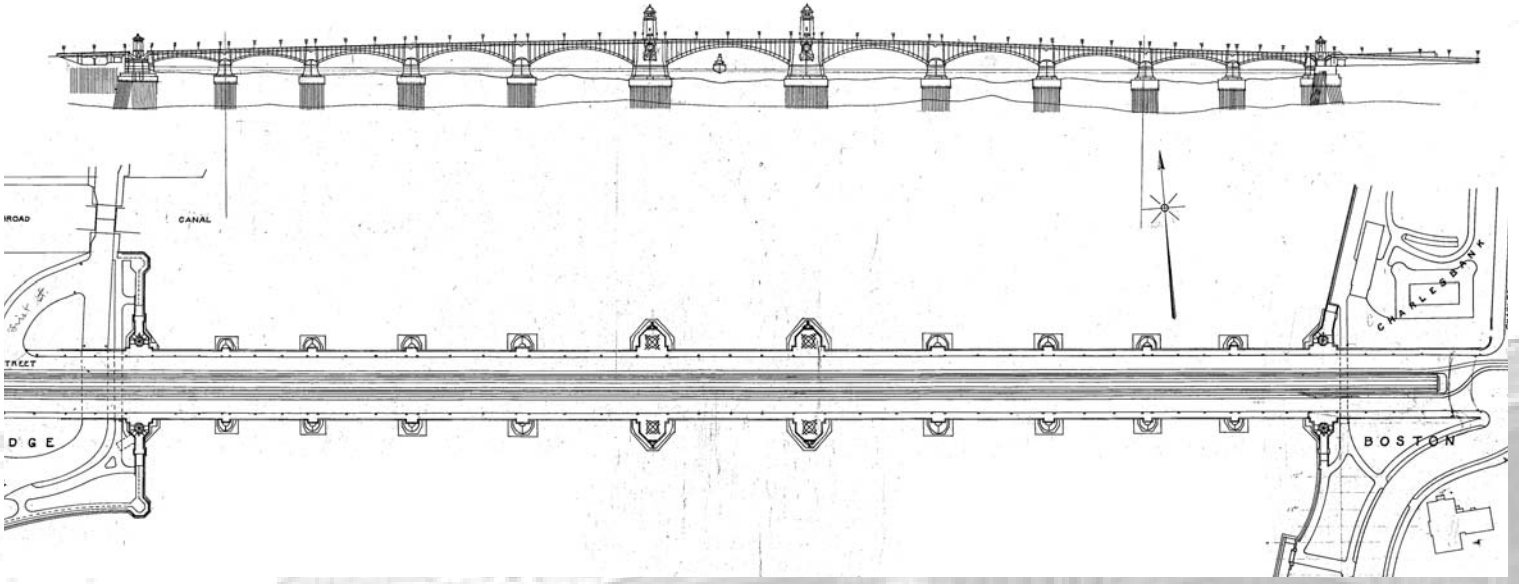






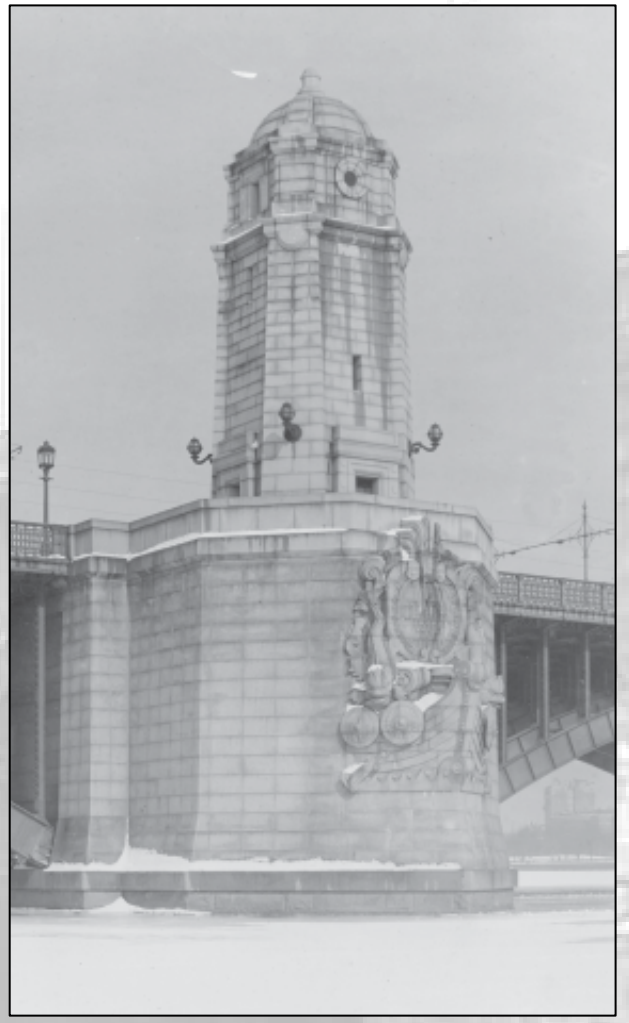


Architectural and Historic Preservation

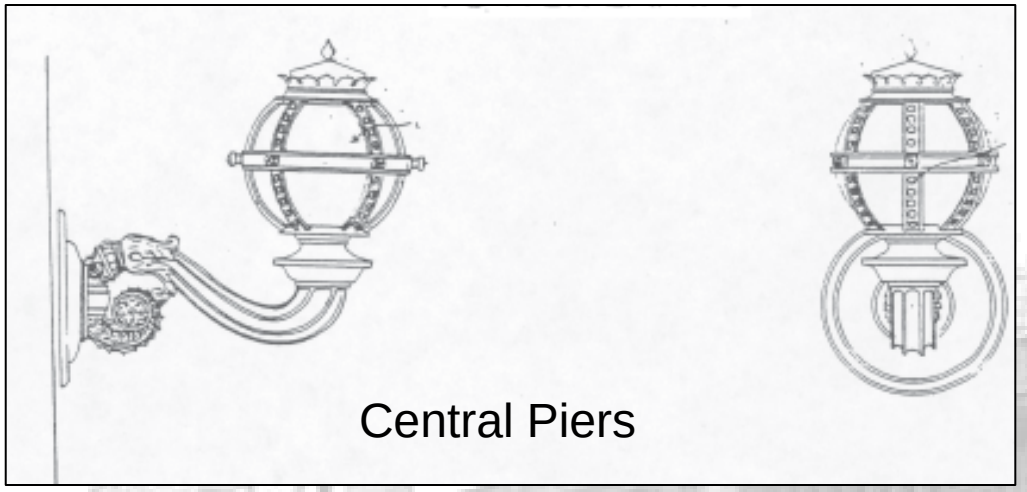


Restoration of Critical Elements

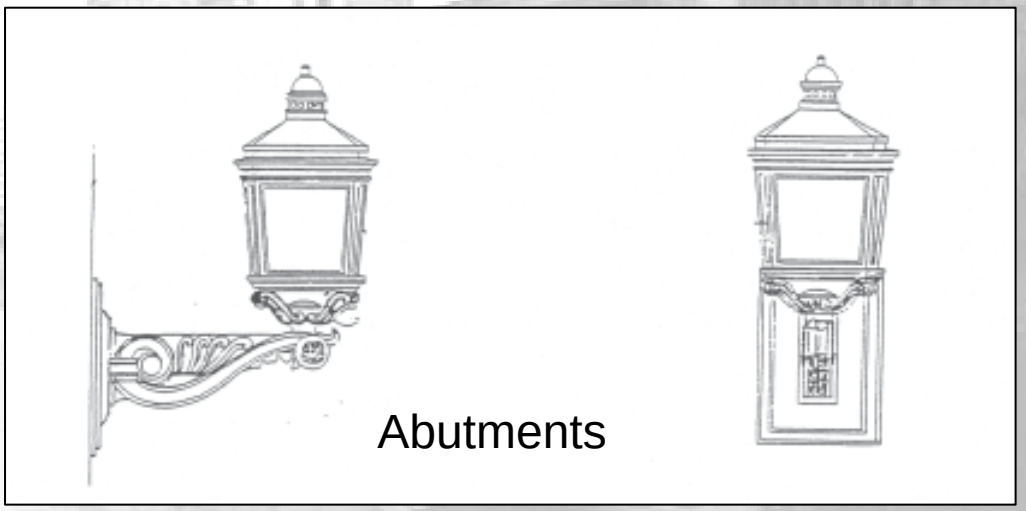
- **Exterior of Main Towers**
- **Exterior of Abutment Towers**
- **Sidewalk Railing/Fascia**
- **Replicate Original Streetlights**



Restoration of Tower Lights



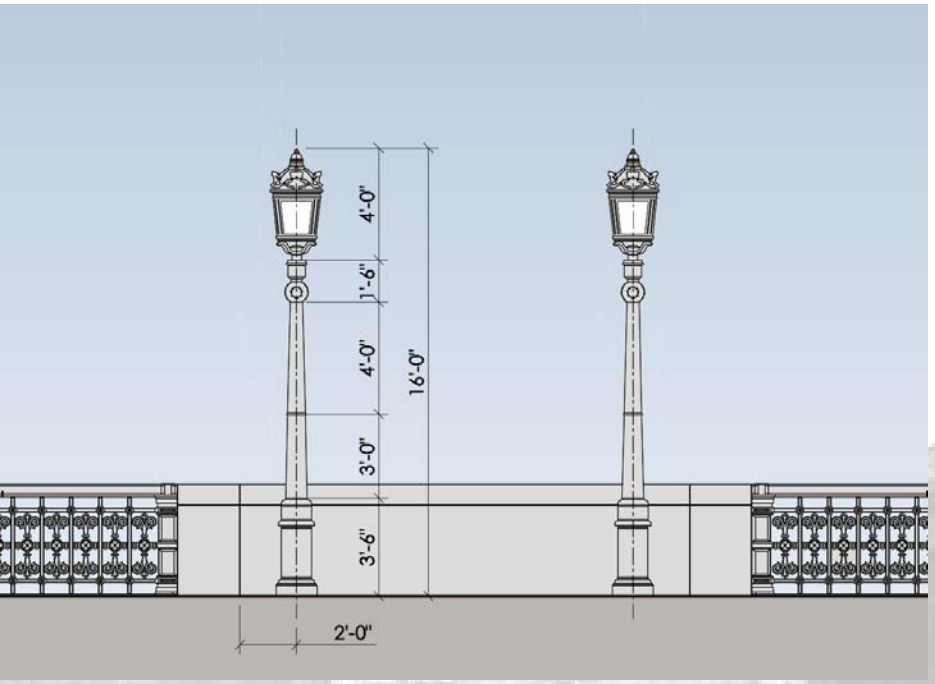
Central Piers

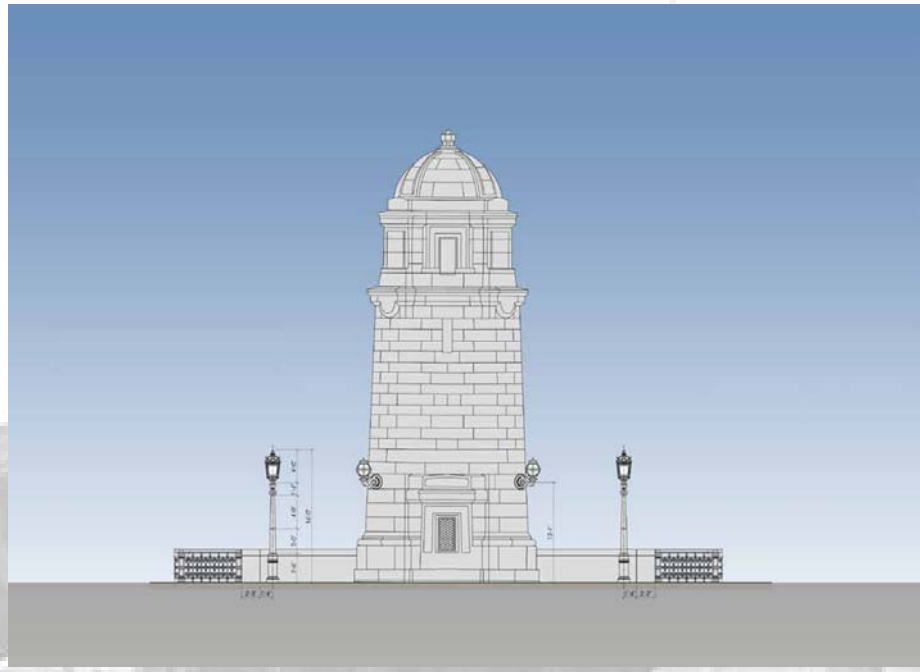


Abutments

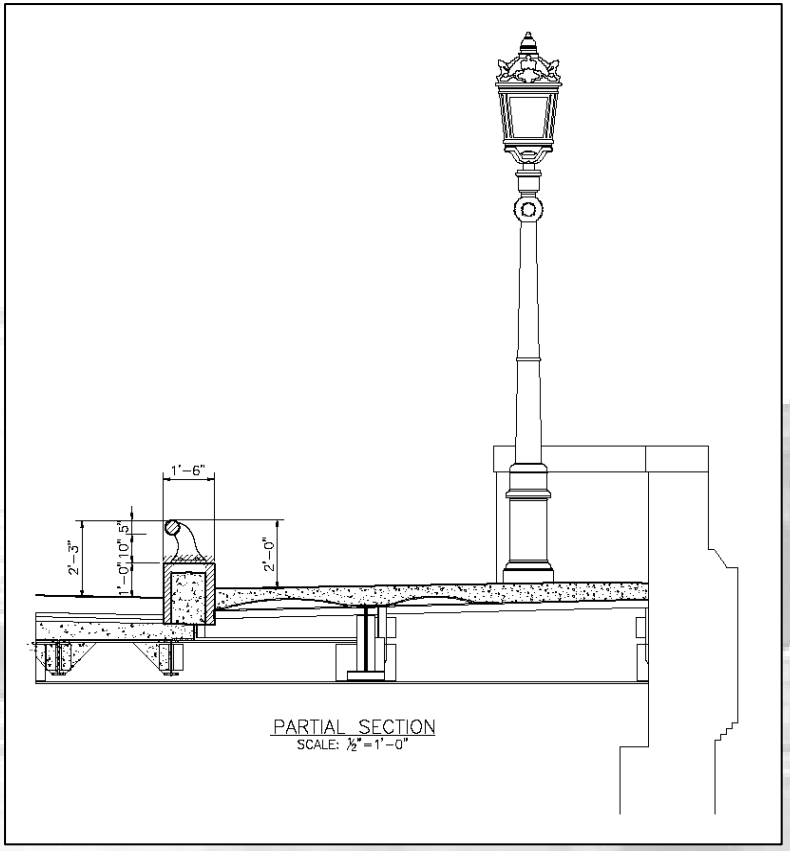
Bridge Cross Section

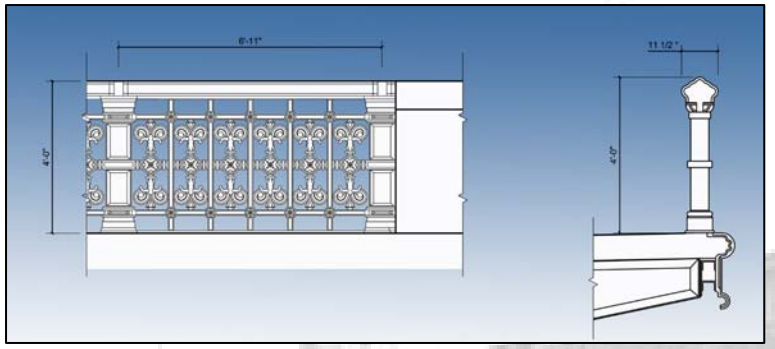
Pedestrian Lighting

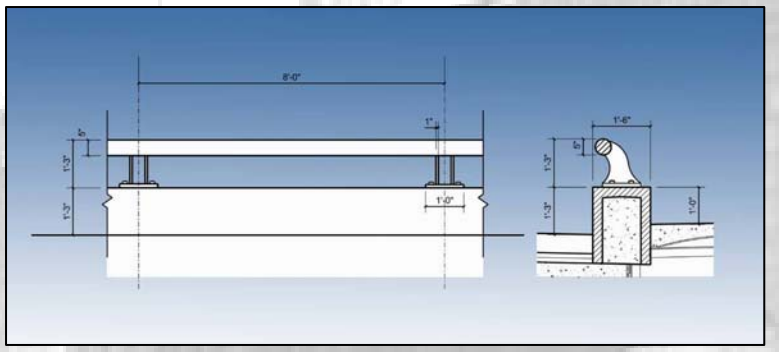


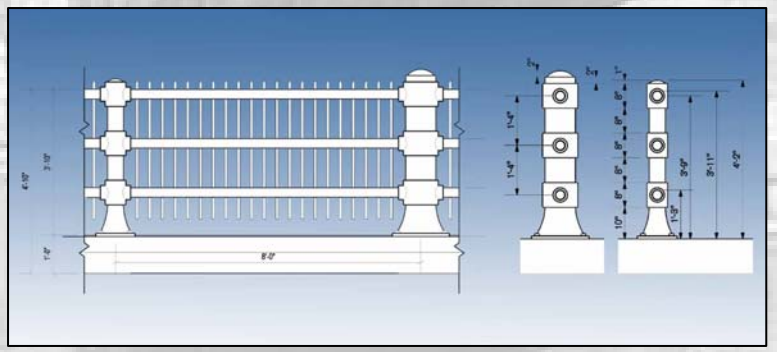


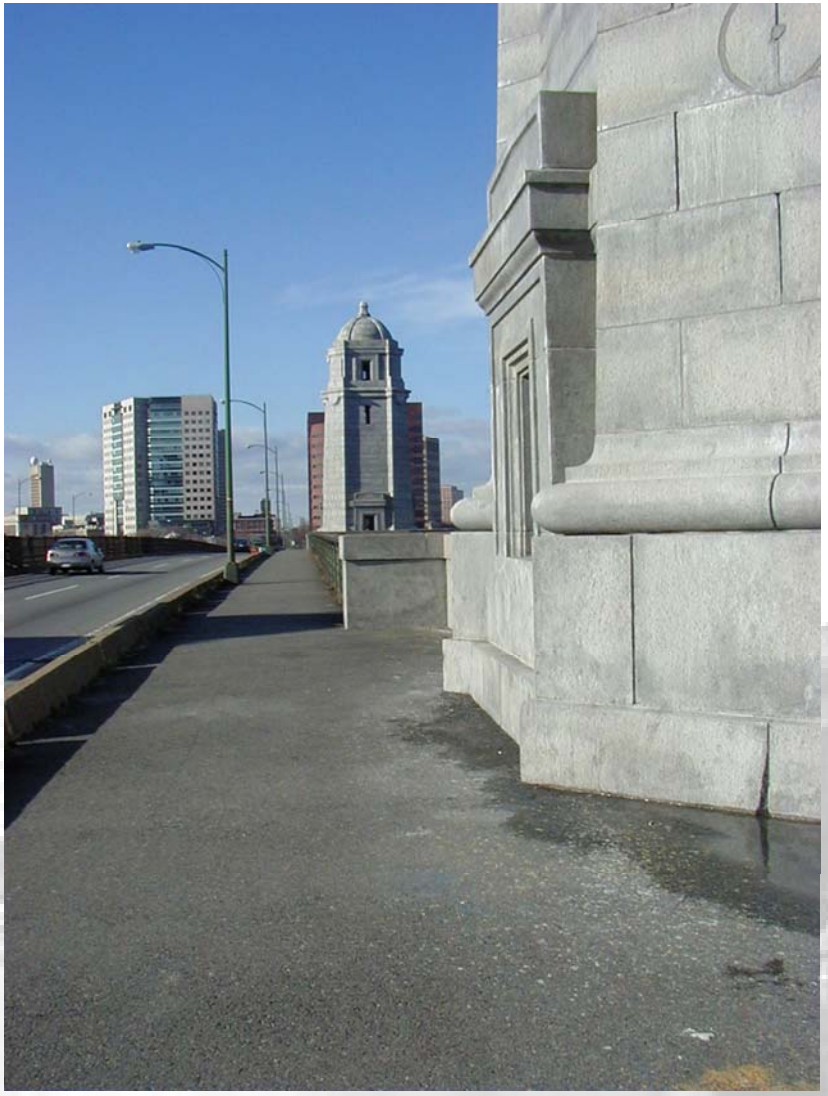
Architectural Details

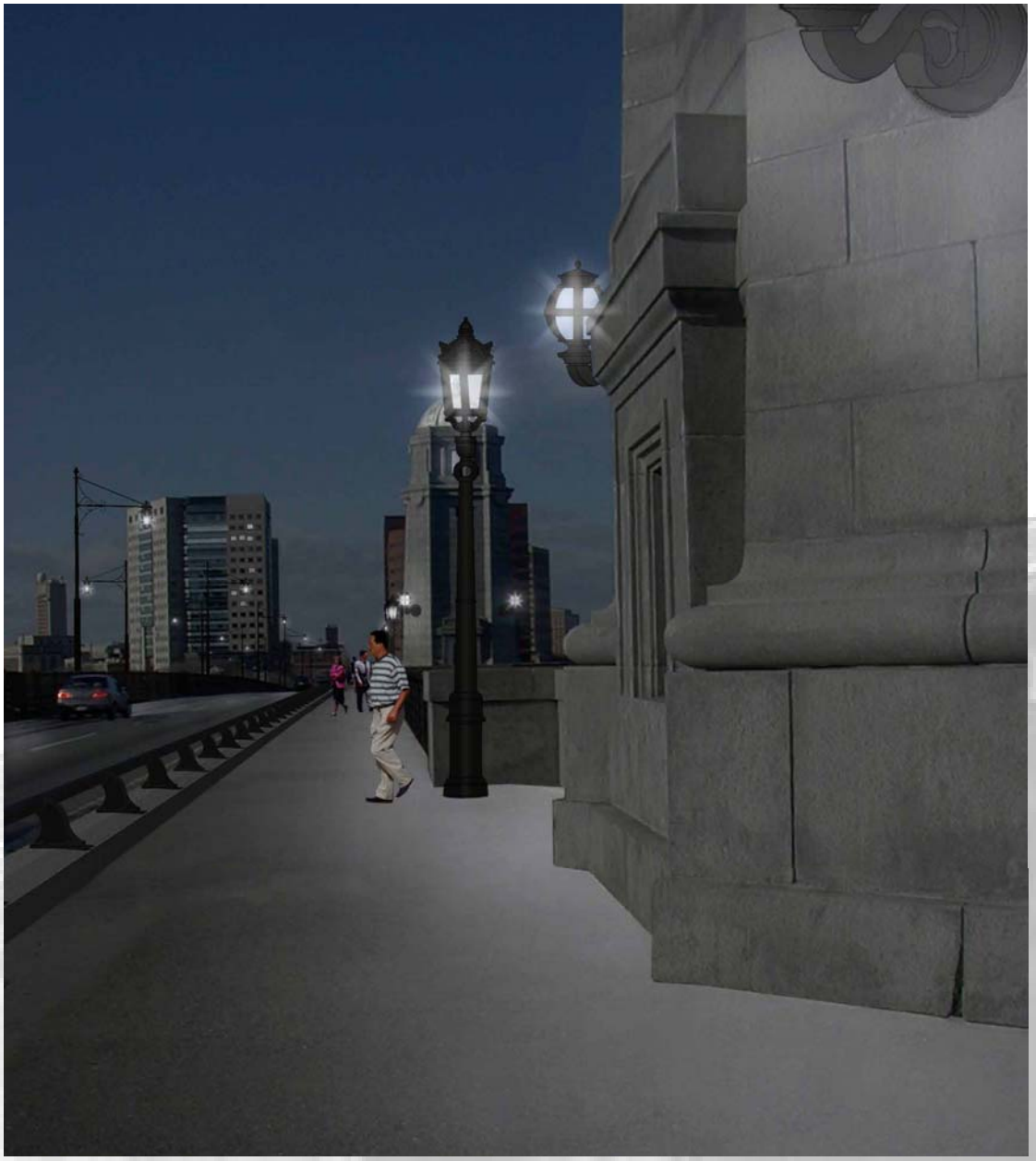












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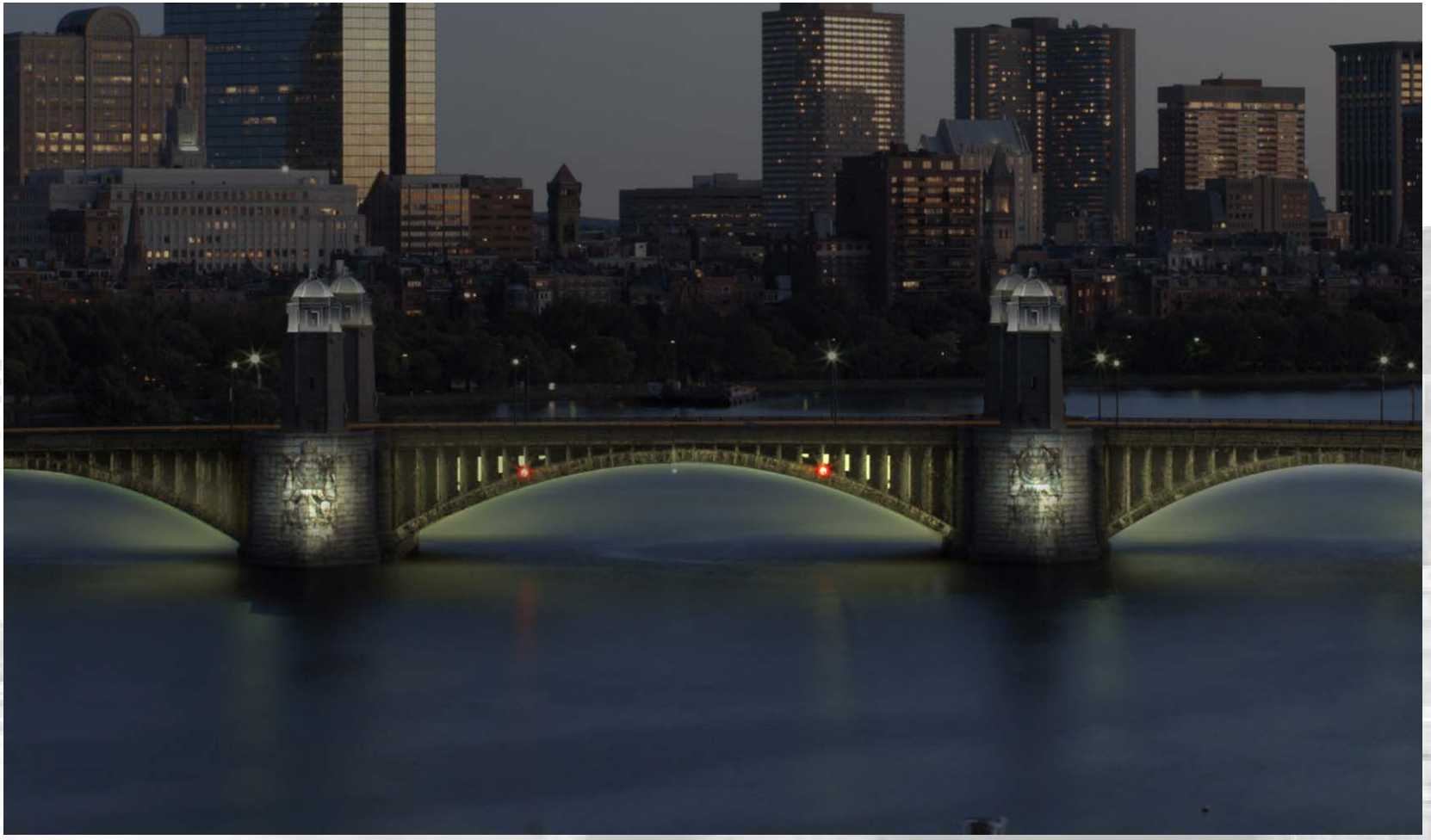
Bridge Aesthetic Lighting

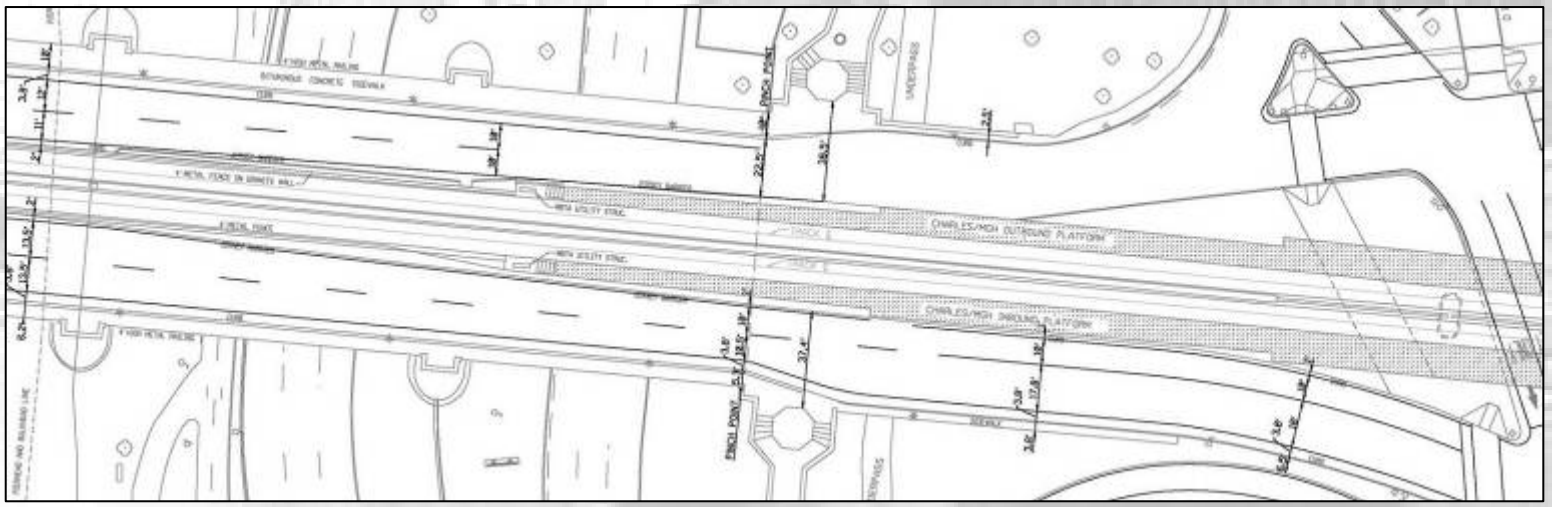
Bridge Aesthetic Lighting



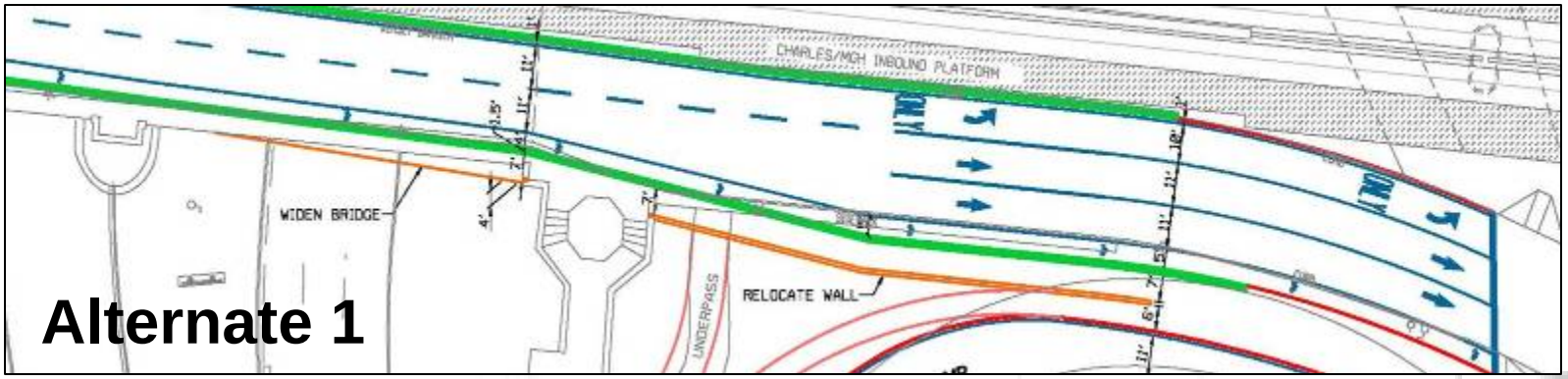
Boston Approach - Downstream

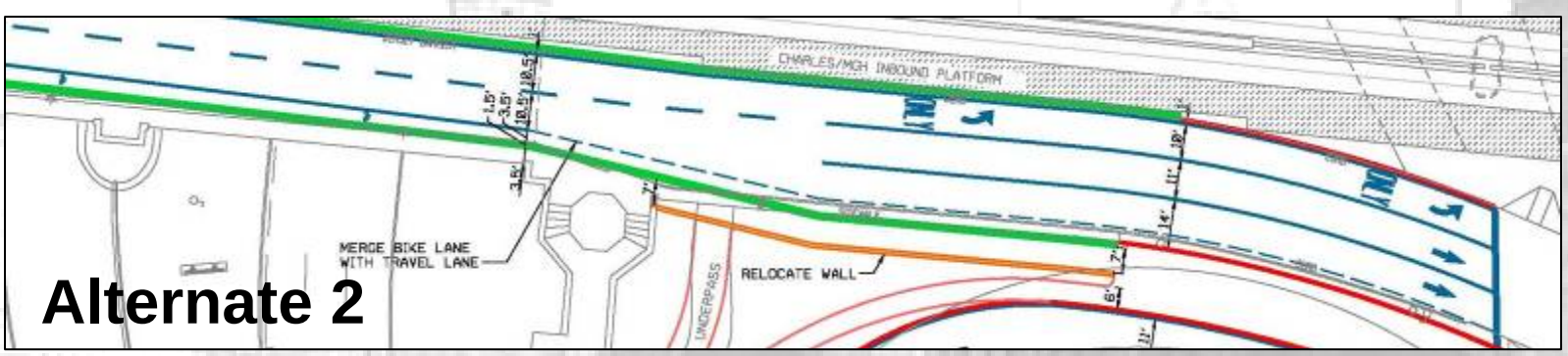
Boston Approach
Upstream Pinch Point

Boston Approach - Existing Conditions



Boston Approach - Upstream





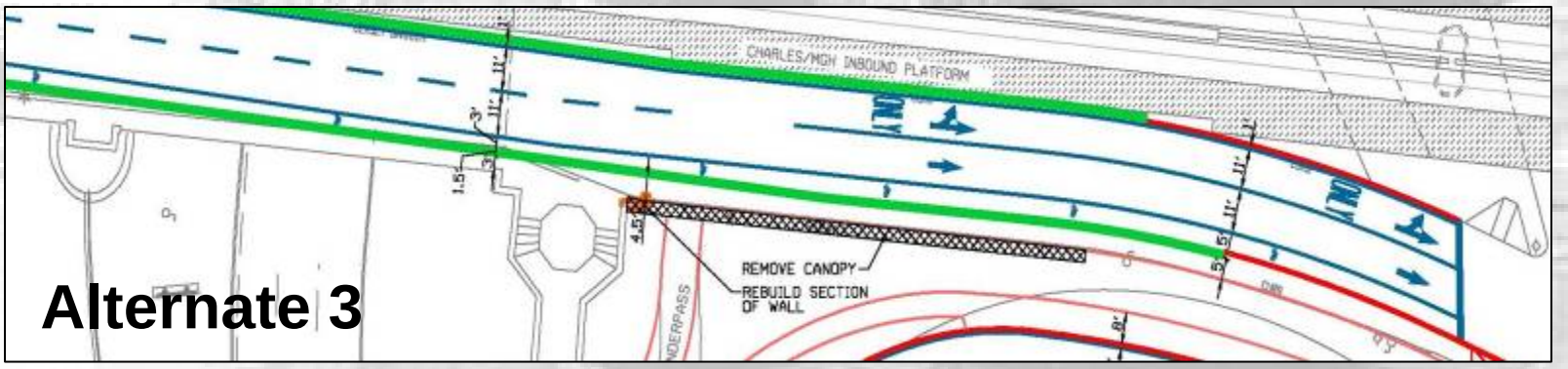
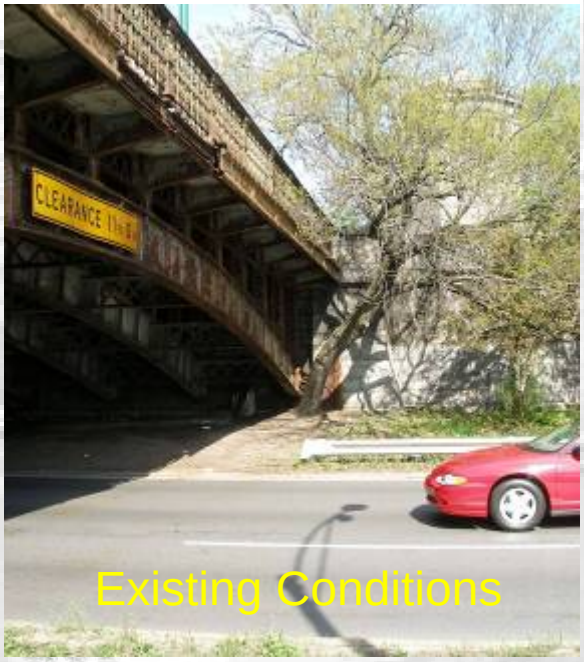
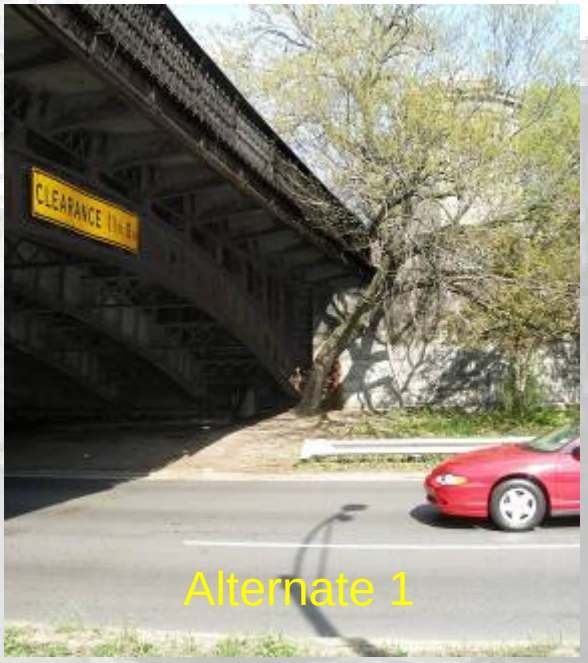


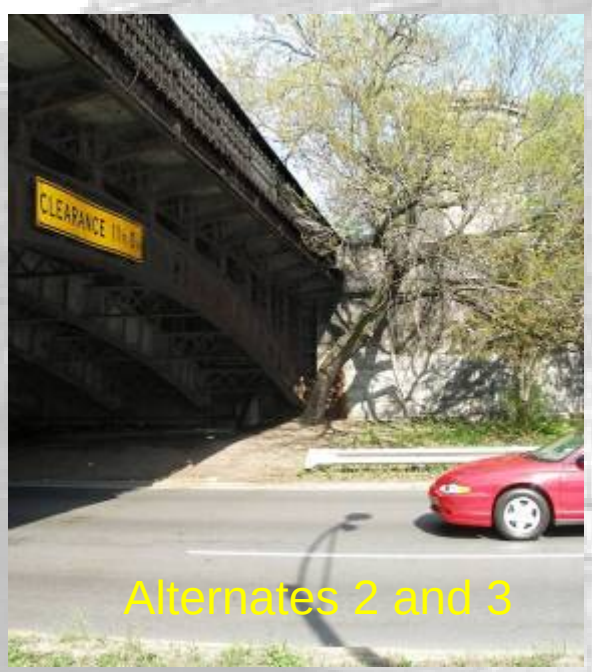
Photo - Visualization



Existing Conditions



Alternate 1



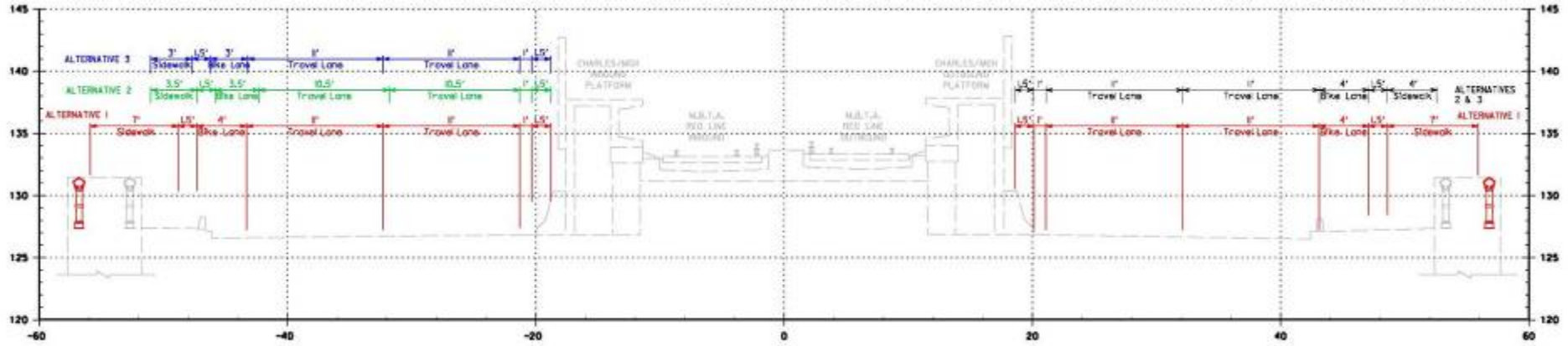
Alternates 2 and 3

Photo - Visualization

Retaining Wall Visualization

Comparison of Alternatives

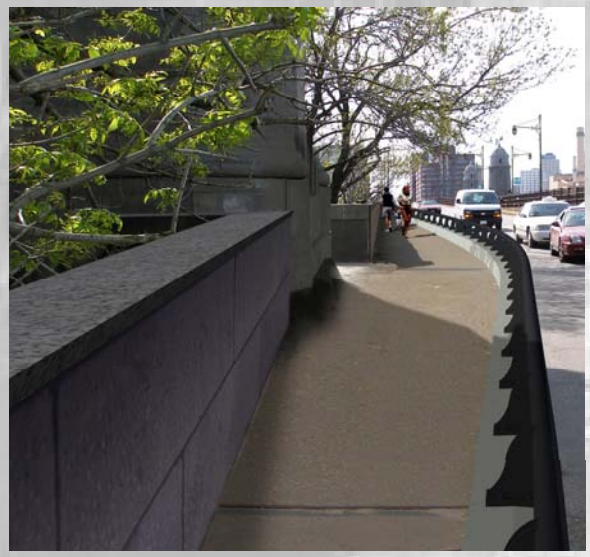
At Pinch Point



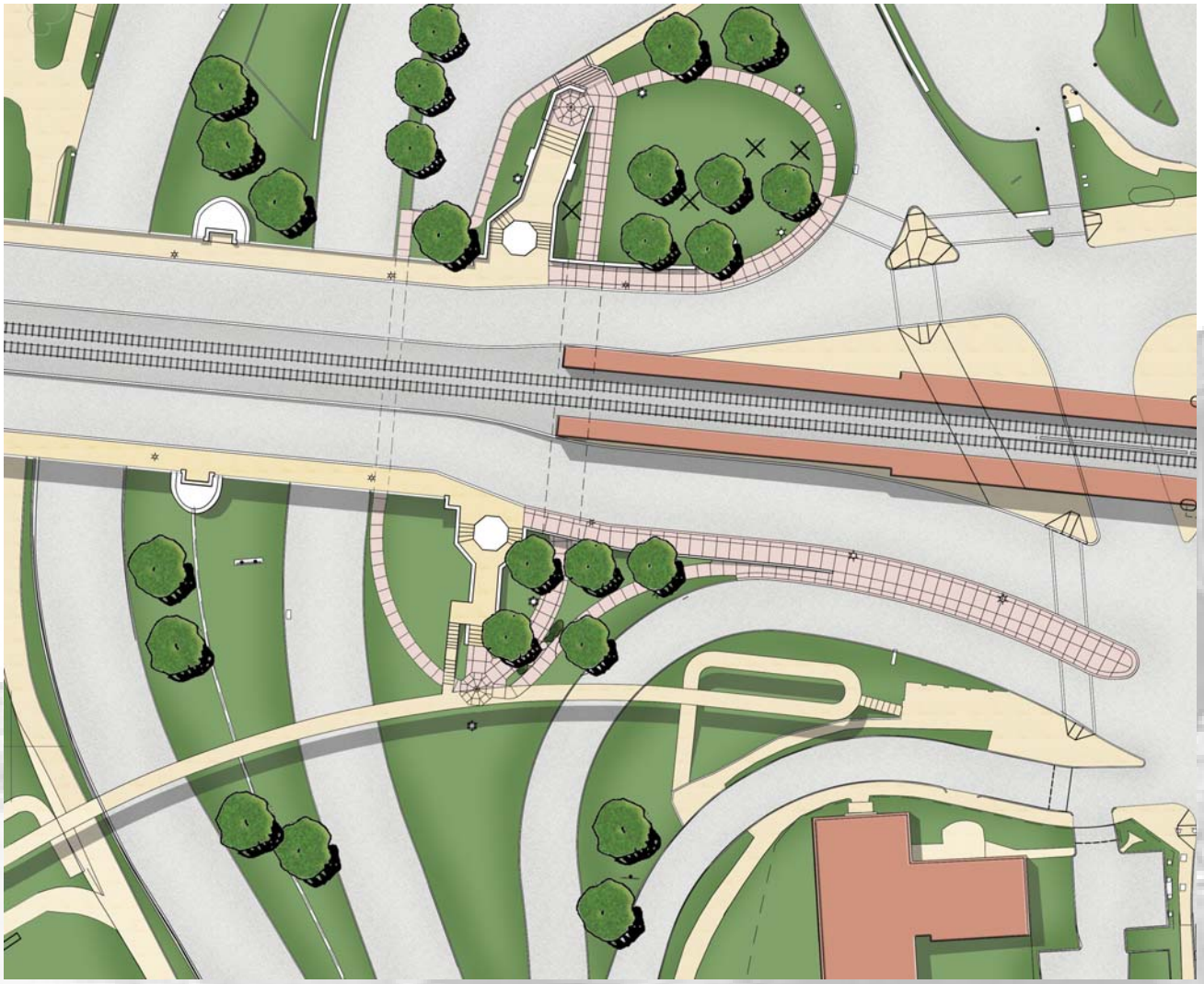
Roadway Element	Existing	ALT 1	ALT 2	ALT 3	Desirable (FHA min.)
MBTA Barrier Offset	1'	1'	1'	1'	2'
Left Roadway Lane	10'	11'	10.5'	11'	12'
Right Roadway Lane	10.5'	11'	10.5'	11'	12'
Bike Lane	3.8'	4‘	3.5'	3'	5’
Sidewalk Barrier	1.5'	1.5'	1.5'	1.5'	1.5'
Sidewalk	4.3'	7’	3.5'	3'	5'

Boston Approach
Preferred - Alternative 1

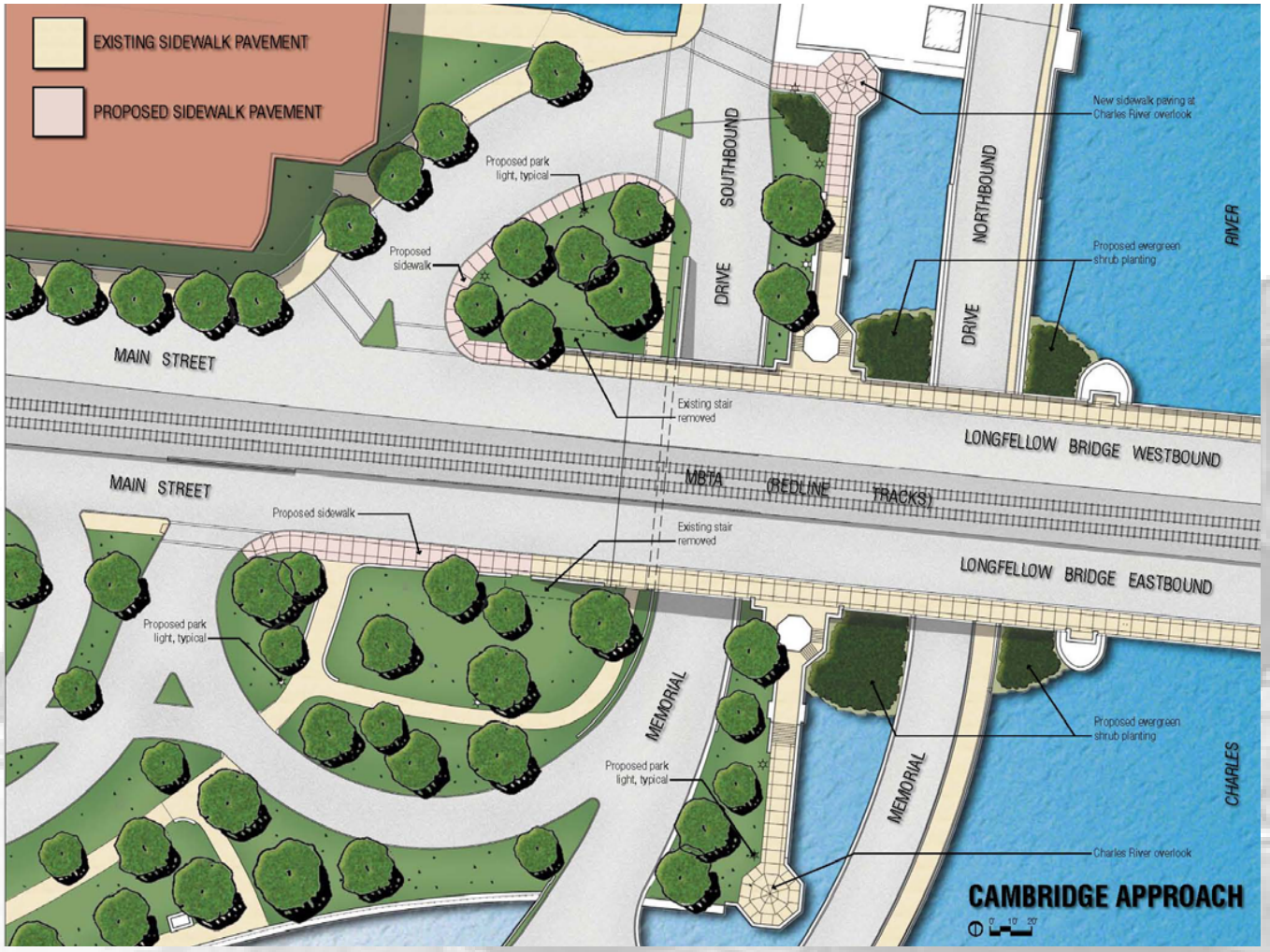
- Fix Problems from Earlier Bridge Modifications
- Architecturally Sensitive Design
- Approaches Roadway Geometry Standards
- Best for Pedestrians and Cyclists
- Maintains Current Traffic Capacity



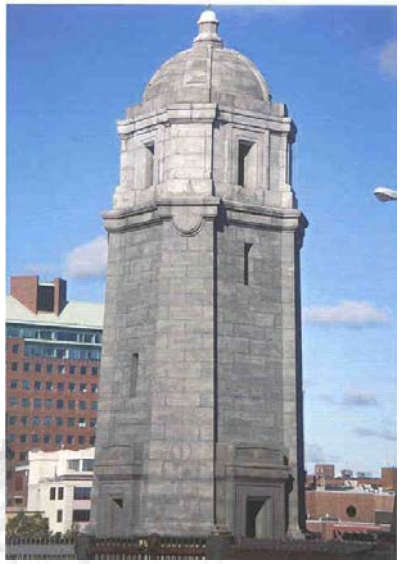
Landscaping - Boston Approach

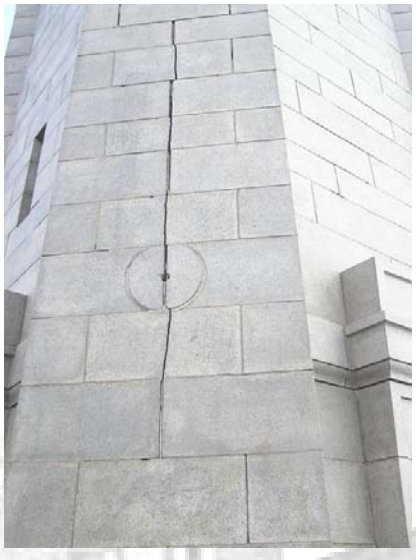


Landscaping - Cambridge Approach



Masonry Tower Repairs





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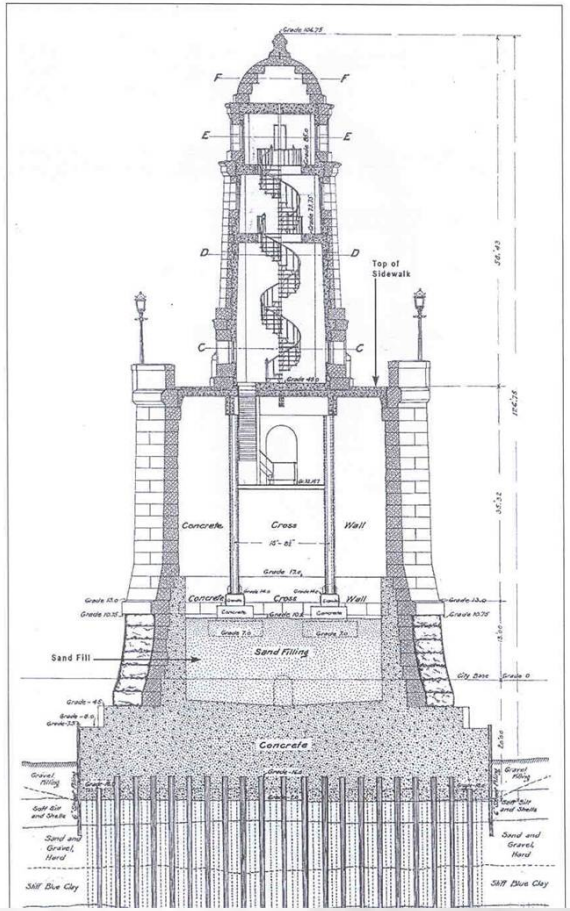
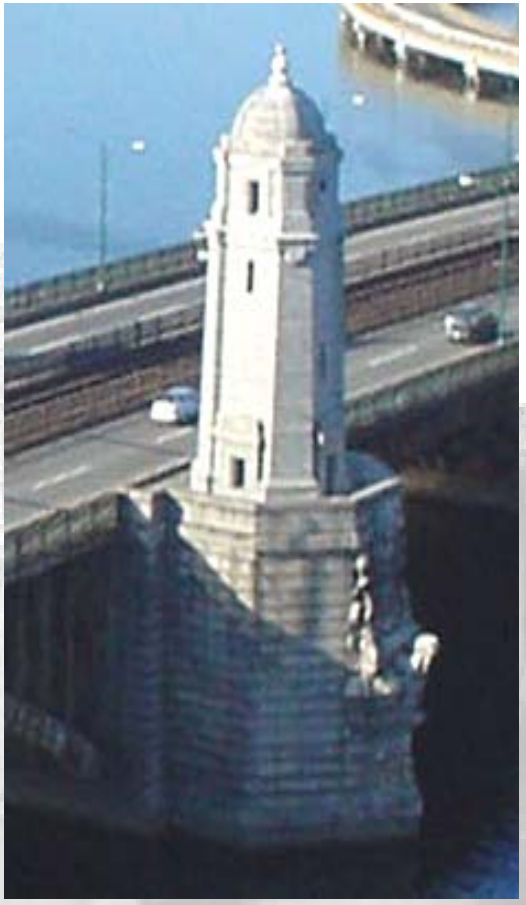
Tower Repair Alternatives

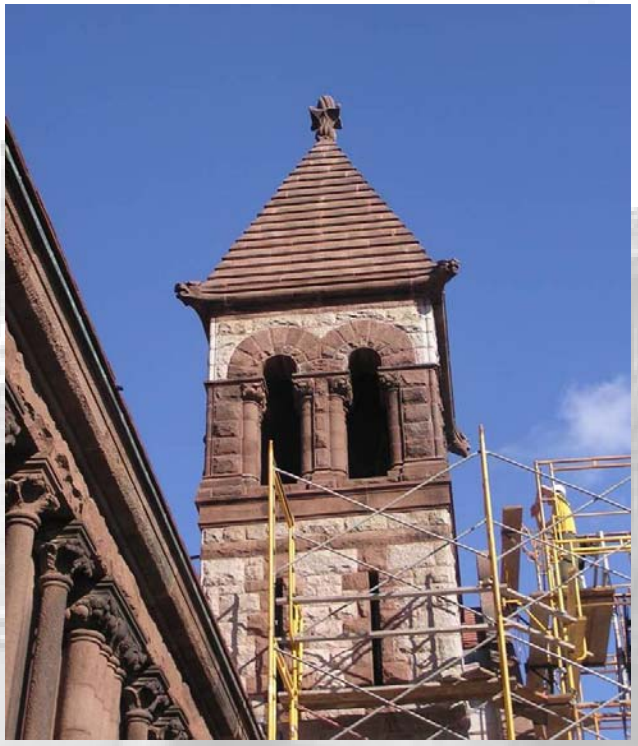




3 Repair Options

1. Dismantle and Re-build
2. Repair in Place
3. Partial Dismantle/Re-build

Tower Repair
Recommended Alternative



Ames Library, Easton MA

Option 1:
Dismantle
and Re-build

- Fixes Problems
- Restores Original
- Similar Cost
- Quality of Repair
- Future Performance

Questions and Answers

www.mass.gov/mhd/longfellowbridge

The Jacobs Team

Jacobs Engineering
Simpson Gumpertz & Heger
Rosales & Partners
The Cecil Group
Judith Nitsch Engineering

Prototype Engineering
Huie Construction Services
Vaidya Consultants
Keville Enterprises
C & C Consulting

HNTB
PAL Inc
Regina Villa
Preservation Technology Associates
Weston Geophysical Exploration

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